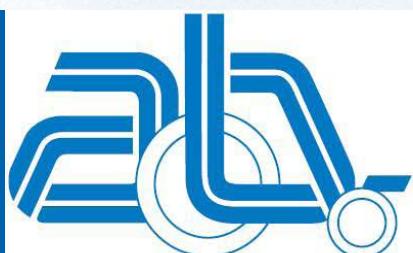


# Installation Manual

## Renault Kangoo and Mercedes-Benz Citan

### SWB WAV-Conversion

Version 2.1



Bierman



## Table of contents

1. General Information	5
1.1 <i>Personal safety regulations</i>	5
1.2 <i>General safety regulations</i>	5
1.3 <i>Used symbols</i>	5
1.4 <i>General Guidelines</i>	6
2. Tools list	7
2.1 <i>Common tools</i>	7
2.2 <i>Electrical/compressed air tools</i>	8
2.3 <i>Special tools</i>	8
3. Survey of the conversion kit	9
4. Dismounting	10
4.1 <i>Dismounting the interior</i>	10
4.2 <i>Dismounting the exterior</i>	16
5. Preparations	24
5.1 <i>Protection of the vehicle</i>	24
5.2 <i>Sawing out the floor</i>	24
6. Installing the conversion kit	29
6.1 <i>Bonding the lowered floor</i>	29
6.2 <i>Fuel tank &amp; Exhaust</i>	37
6.2.1 <i>Fueltank Diesel</i>	39
6.2.2 <i>Exhaust Diesel</i>	55
6.2.3 <i>Fueltank Petrol</i>	60
6.2.4 <i>Exhaust Petrol</i>	72
6.3 <i>Fuel tank protection plate</i>	77
6.4 <i>Electrical installation for 4-point belt fixation</i>	78
6.5 <i>Mounting the rear and rear bumper</i>	82
6.6 <i>Remounting the interior</i>	103
6.7 <i>Mounting the 1/3 part of the backseat on the right side</i>	108
6.8 <i>Ramp</i>	114
6.9 <i>4-Point belt fixation</i>	123
6.10 <i>Connecting the moved parking sensors</i>	127
7. Torque specifications	129
8. Checklist	130
9. Notes	131
10. Contact	132
10.1 <i>Contact persons</i>	133
11. Recommendation form	134

- The general information has been extended.
- A checklist is included for inspection of the vehicle after conversion.
- Contact persons are updated



## 1. General Information

### 1.1 Personal safety regulations

- Always wear suitable protective clothing, safety shoes and use safety glasses, ear protection, respiratory protection and protective gloves if necessary.
- Do not wear rings, watches and loose jewellery.
- Never carry loose items in pockets.
- Tie long hair together.

### 1.2 General safety regulations

- Make sure your tools are in good condition and use it only for the intended purpose.
- Always use axle stands whenever you work underneath the car.
- Ensure that the vehicle can not roll off from the 4-post lift.
- Work safely with hazardous materials such as fuels.

### 1.3 Used symbols



You need an extra pair of hands.



Wear protection for eyes and ears.



No open fire or smoking.



Part can be thrown away. No need for it anymore.

## 1.4 General Guidelines

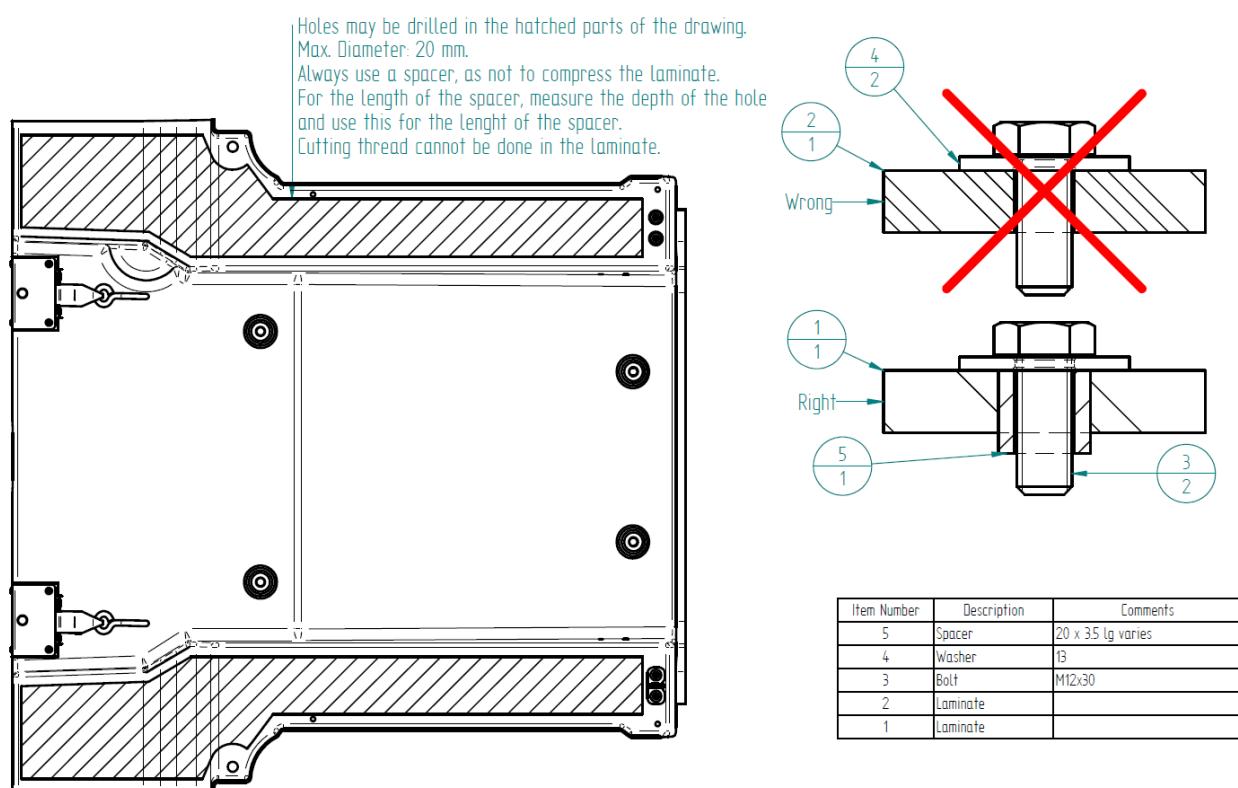
- Read the instructions carefully, before starting to convert the vehicle.
- **IMPORTANT:** Only use a 4-post car lift while converting the car!
- Never throw the dismounted parts away, unless mentioned otherwise.
- Keep all the parts stored together.
- Be sure that you have enough working space in- and outside the vehicle.
- Make sure the vehicle is dry before you start the conversion.
- Before you start, you need to disconnect the connections to the battery.
- The vehicle must not move during the conversion, to assure a good geometry of it.
- Never remove the steel bumper before the lowered floor is fixated in the vehicle.
- Always check the website for the latest installation guide.

### IMPORTANT:

When the car is brand new, direct from the factory, the electrical system of the car needs to be reset. The VW dealer can do this.

### IMPORTANT:

Holes (max. 20 mm) may be drilled in the hatched parts of the drawing below. Always use a steel spacer to prevent damaging GRP (Glass Reinforced Polyester)



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## 2. Tools list

### 2.1 Common tools

- Sealant gun 1 (or pneumatic adhesives dispenser gun)
- Calibrated torque wrench 2
- Pop riveter 3



## 2.2 Electrical/compressed air tools

- Angle grinder (electrical/pneumatic) **4**
- Circular saw (electrical) for metal (for example: Milwaukee MCS 65) **5**
- Saw (pneumatic) **6**
- Impact wrench (pneumatic) **7**
- Pop riveter (pneumatic) **8**
- Drilling machine (electrical/pneumatic) **9**



## 2.3 Special tools

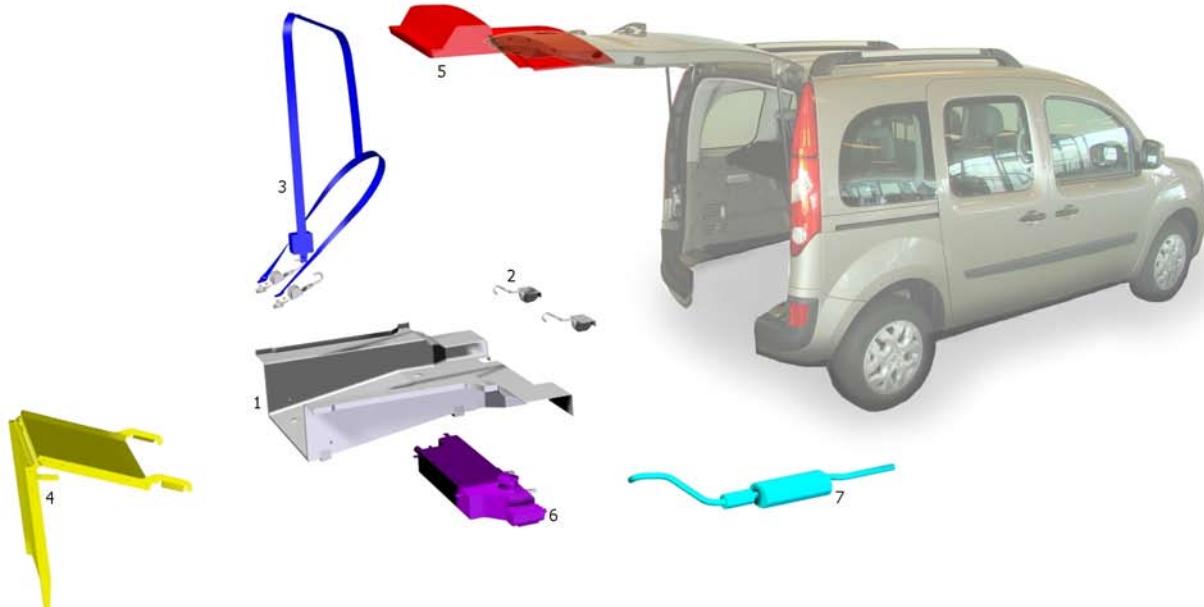
- Floor mould (on sale at Bierman, part number N200014003) **10**
- Bumper mould (on sale at Bierman, part number N200014004) **11**
- Wooden beam **12**



### 3. Survey of the conversion kit

In the picture below you see the most important parts of the conversion kit.

#### Conversion Kits for wheelchair accessible vehicles



1. Lowered floor	N200001004
2. Q'straint 4-point fixation	QE-4176
3. Q'straint 3-point fixation	N150013018 and QE-4176
4. B/C-Ramp Assembly	O5643/O5644
5. Bumperpart Complete	N150002001
6. Fuel tank	N726607002
7. Exhaust	petrol: 760110      diesel: 760111

## 4. Dismounting

### 4.1 Dismounting the interior



Remove the rear shelf.



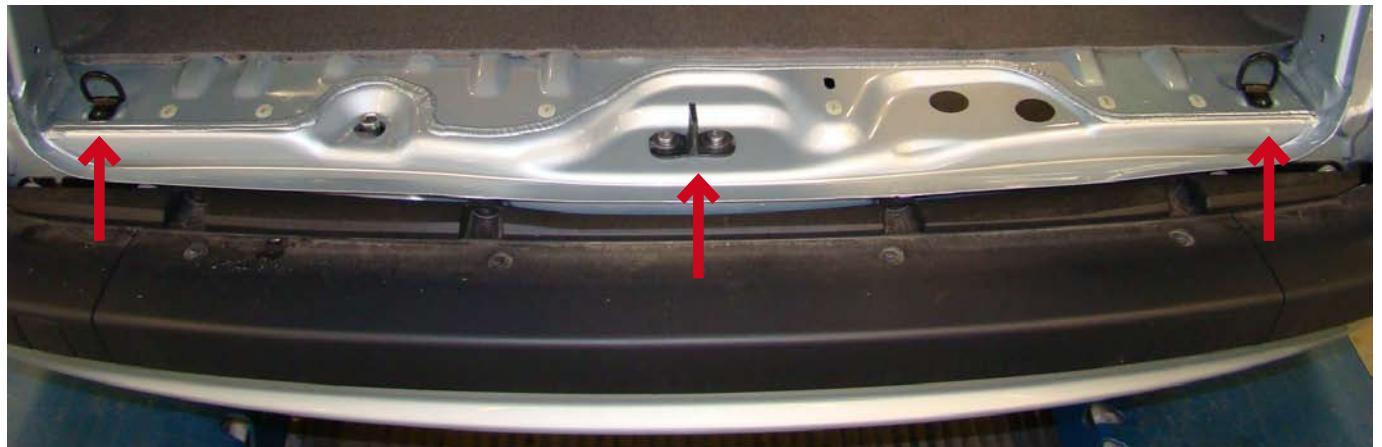
Remove the rubber of the rear and both side doors.



Remove the covers from the wheel arches, disconnect the connector plug.



Remove the cover of the door latch.



Remove the door latch and all attachment eyes.



Remove the cover of the rear hatch.



Remove the lock of the rear hatch.



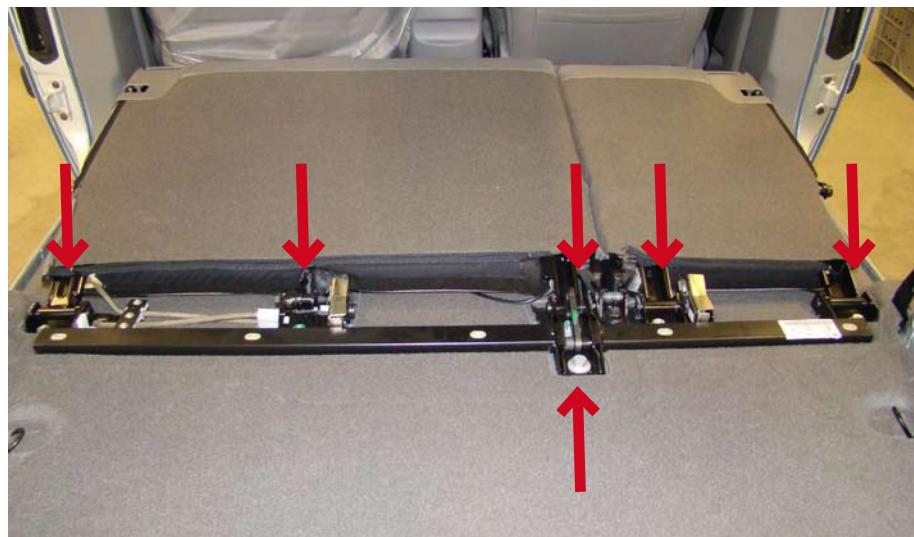
**Bierman**



Bend the bracket indicated in the left picture away, as indicated in the right picture.



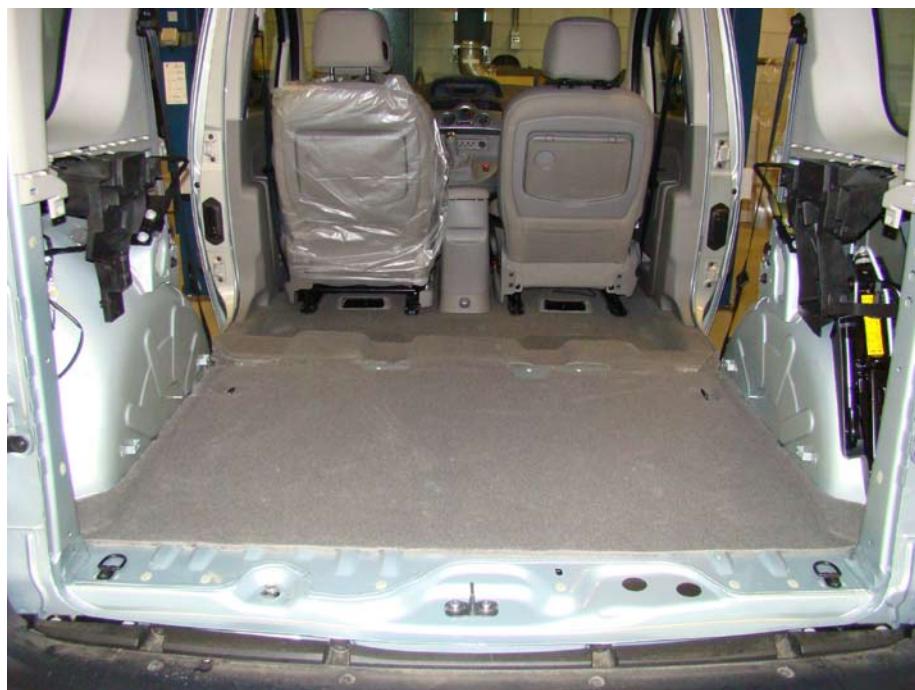
Remove the cover of the back seat.



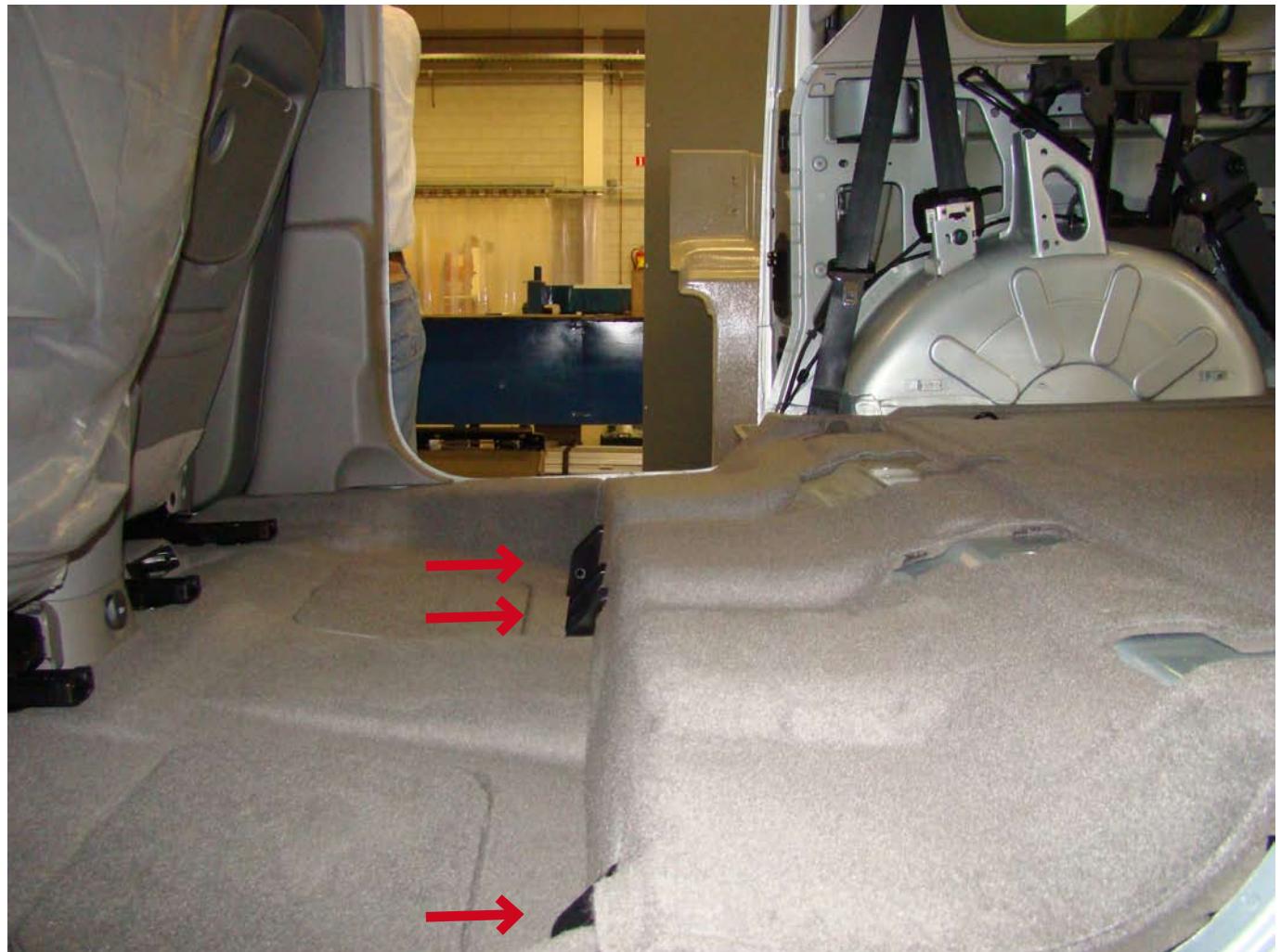
Unscrew the bolts that are indicated in the picture.



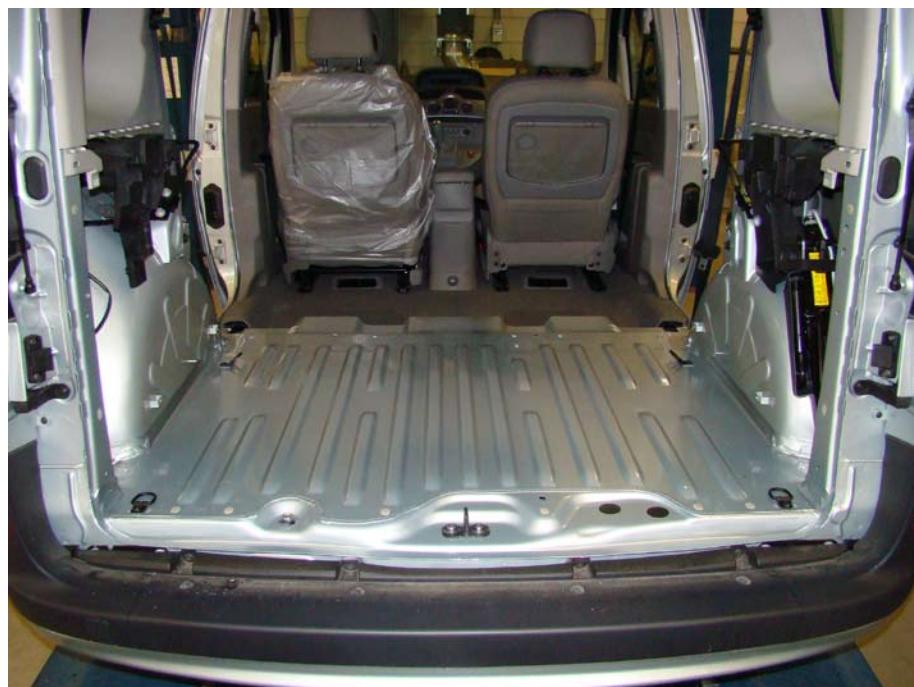
Remove the bolts that are indicated in the picture.



Remove the back seat out of the vehicle.



Remove the brackets that are indicated in the picture.



Remove the floor covering.





Unscrew the bolts of the belts, top and bottom, from the back seat.



Finally remove the caps over the windows and the ceiling.

## 4.2 Dismounting the exterior



Remove the spare wheel by unscrewing the bolt.



Remove the frame of the spare wheel.



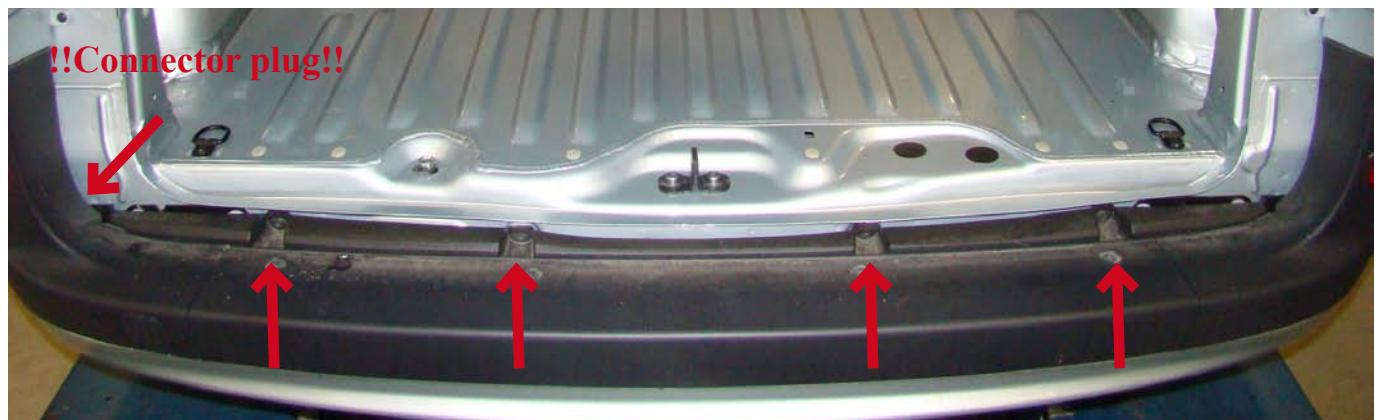
### Removing the tail lights (both sides)

1. Unscrew the bolts.
2. Disconnect the connector plug.



**Removing the rear bumper:**

Unscrew the bolts and remove the cap (both sides).

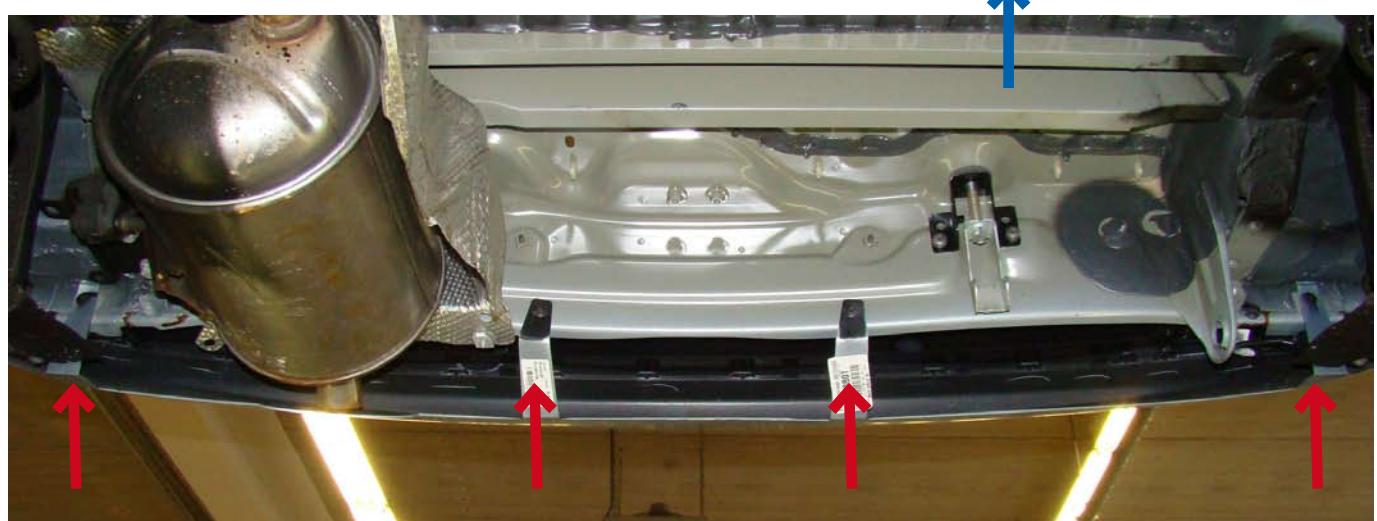


Unscrew the bolts at the top of the bumper.



Unscrew the bolts in both wheel arches.

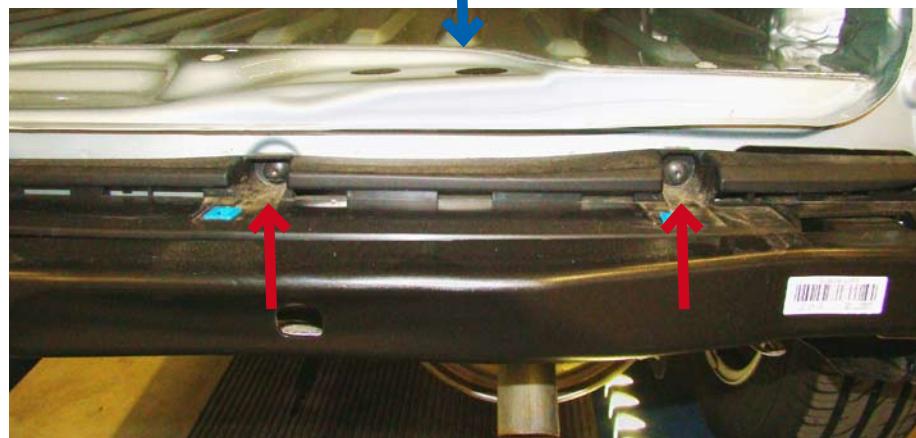
Unscrew the bolts underneath the bumper.



Disconnect the connector plug (left side) and remove the plastic bumper.



Remove the inner bumper part by unscrewing the bolts (4 bolts).  
**!!Leave the steel bumper part on the vehicle!!**

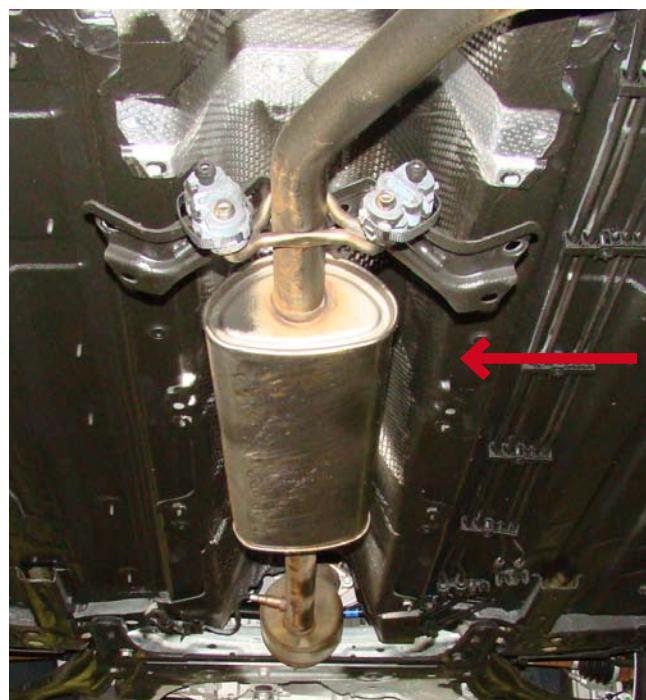




**Dismounting the exhaust:**

Unscrew the mounting bracket at the rear.

Place a support underneath the exhaust.  
Unscrew the mounting bracket at the middle.



**IMPORTANT:**  
When the center heat shield is not standard on the car, you need to order it at your local Renault dealer!!  
**Part number:**  
**8200521320**



Saw through the original exhaust at a point which is good measured. To make sure you don't make the exhaust pipe too short you can take a look at the new exhaust. Later you have to saw the exhaust pipe to the right size.





Remove the heat shield.



!!Keep these parts and matching bolts!!



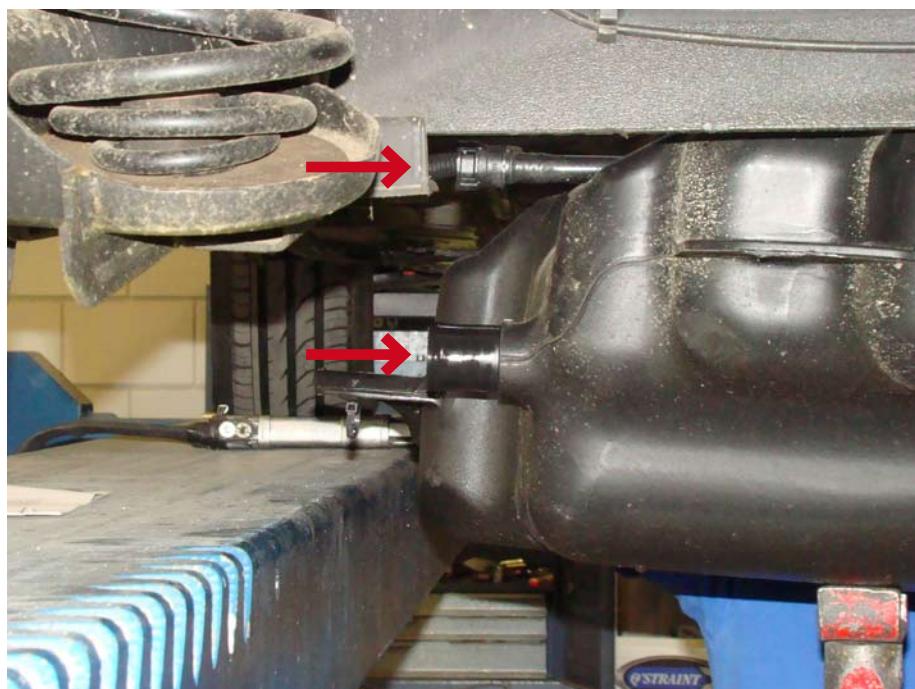
On the left side of the rear axle, you have to remove a small bracket. Saw it away and treat the sawing edge against corrosion.

**IMPORTANT:** Make sure that the fuel tank is empty before removing!!



**Dismounting the fuel tank:**

Place a support underneath the fuel tank.



Unhook both pipes indicated in the picture.



Unscrew the bolts of the fuel tank (5 bolts).



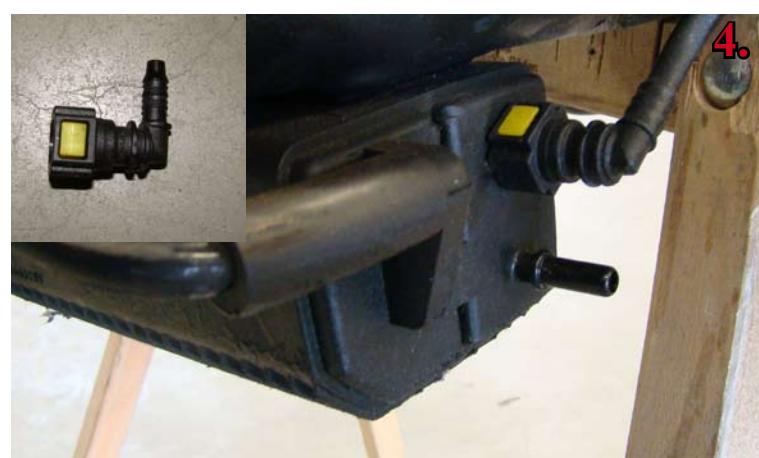
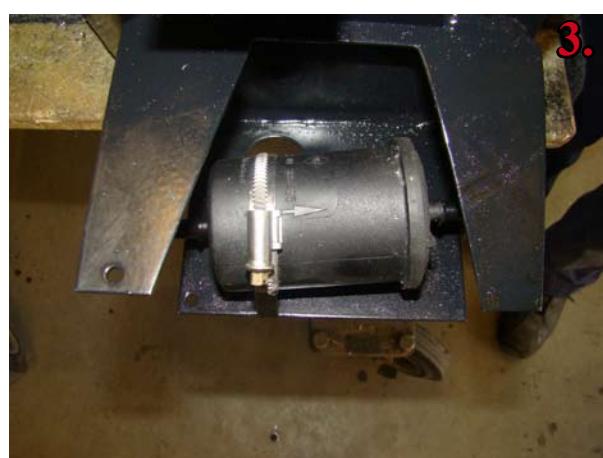
Disconnect the connector plug from the float element and both fuel pipes. (Petrol:one to the float element and one to the carbon canister).



**IMPORTANT: Make sure that you keep all attaching nipples!!**

Remove the fuel tank and keep the following parts:

- **Float element 1**
- **Attaching nipple 2**
- **Diesel:** Fuel filter (only when a particulate filter is present) **3**
- **Petrol:** Carbon canister + attaching nipple **4**

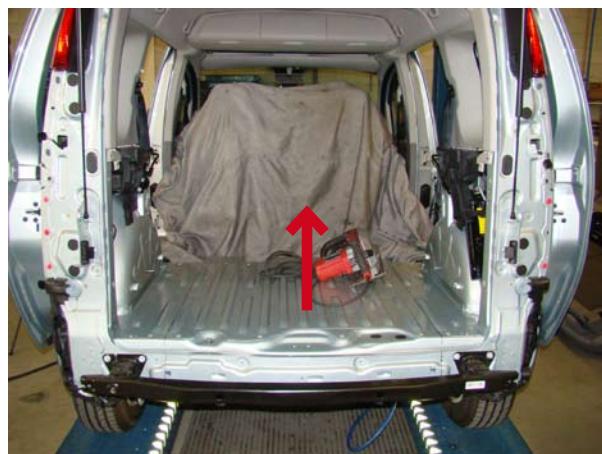


The other parts you can throw away, no need for it anymore.



## 5. 5. Preparations

### 5.1 Protection of the vehicle



Protect the interior of the vehicle.

### 5.2 Sawing out the floor

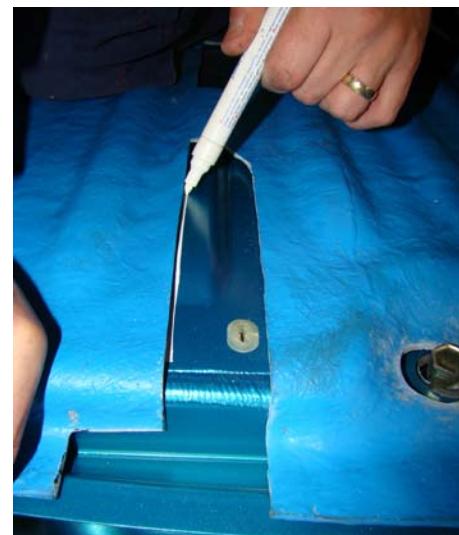


**IMPORTANT:** During the sawing you must always wear protection glasses and protection for your ears!!

**IMPORTANT:** Make sure that the vehicle is dry when sawing out the floor!!

**IMPORTANT:** Be sure that all hydraulic pipes and electrical pipes are bent downwards, before sawing out the floor!!

Place the mould into the vehicle (fasten it with original bolts), mark the lines (outer sides of the mould). Remove the mould from the vehicle.



First saw through the lines in the longitudinal direction of the vehicle, using the circular saw (minimal saw depth 50 mm and maximum saw depth 65 mm). The front side and the parts underneath the car need to be done with the air saw.





Level the surface where the lowered floor is coming. Remove the obstacles.

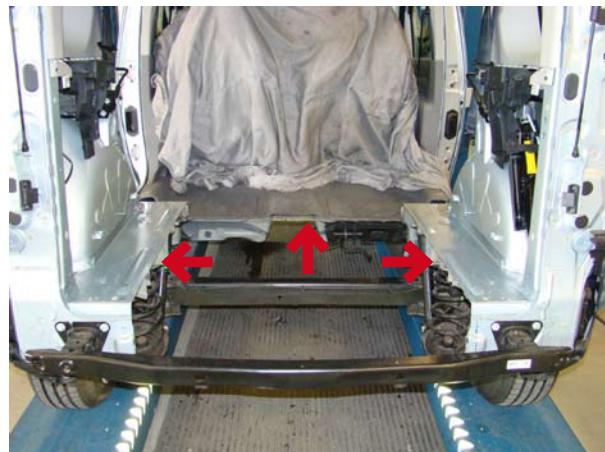
Remove any access kit on the right and left wheel arches.



Remove a part of the edge at both sides of the vehicle, as was indicated by the mould.

**IMPORTANT:** Before you glue the lowered floor in the vehicle you need to try it in the vehicle!!

Make sure that the lowered floor fits perfect in the vehicle. Mark the sawing lines for the holes, for the electrical front belts (see below).



Remove the sharp edges of the saw cuts.  
Do this by using an abrasive machine.



Saw the holes for the electrical front belts, marked earlier (left picture).

On both sides you have to saw away the rectangle of the part below the carpet, which you see in the picture above.

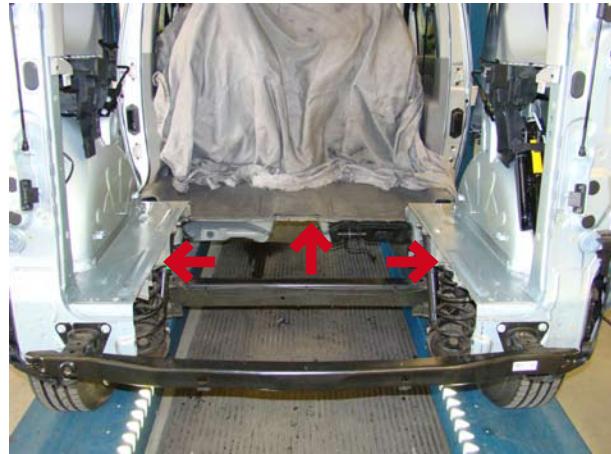
**Put the brown electrical wire of the 4-point belt fixation underneath the floor covering before you glue the lowered floor into the vehicle.**



**Before you place the lowered floor into the vehicle, make sure that the connector plug of the brown electrical wire is going to the left wheel arch.**



**IMPORTANT: Always treat the sawing edges against corrosion!!**



To treat the sawing edges against corrosion, use the primer that is included in the kit.

**IMPORTANT: You always have to treat the sawing edges to prevent corrosion!!  
Your company is liable for the warranty!!**

## 6. Installing the conversion kit

### 6.1 Bonding the lowered floor

**IMPORTANT:** Make sure that the vehicle is dry before preparing the vehicle.

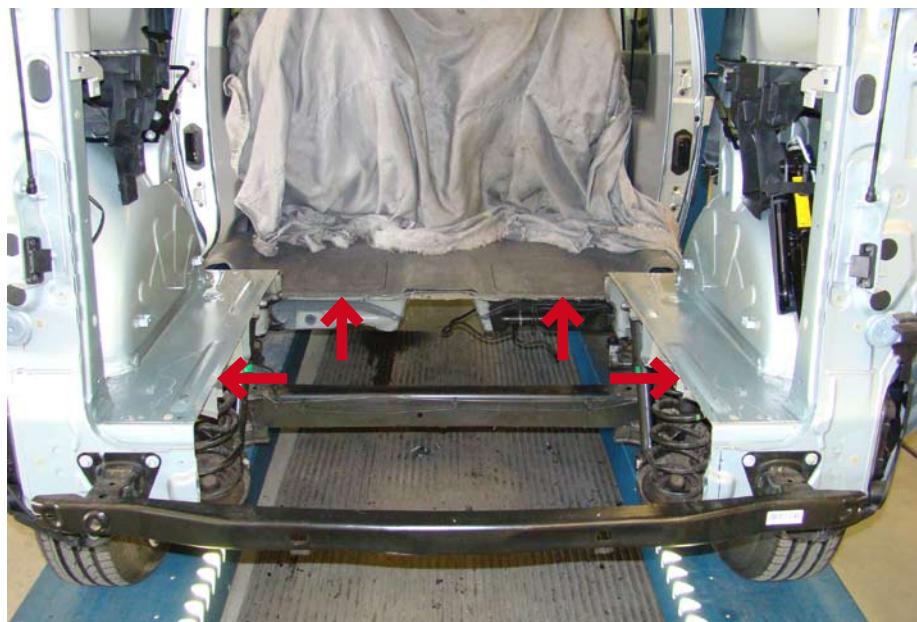
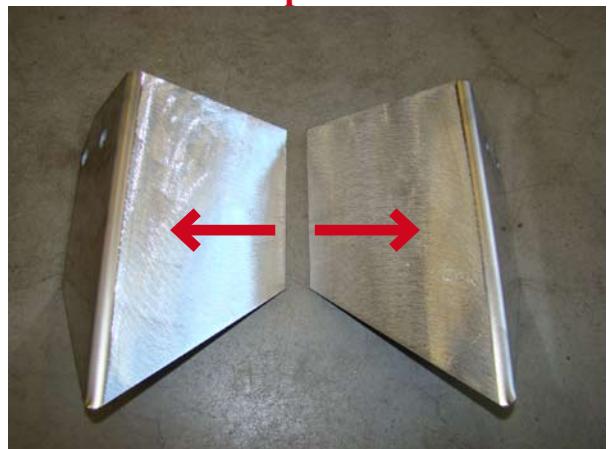
**IMPORTANT:** Make sure that the parts which will be glued are prepared with **Cleaner I** and **Prep M**.

**IMPORTANT:** Be sure that the saw cuts are treated against corrosion before bonding the lowered floor into the vehicle.



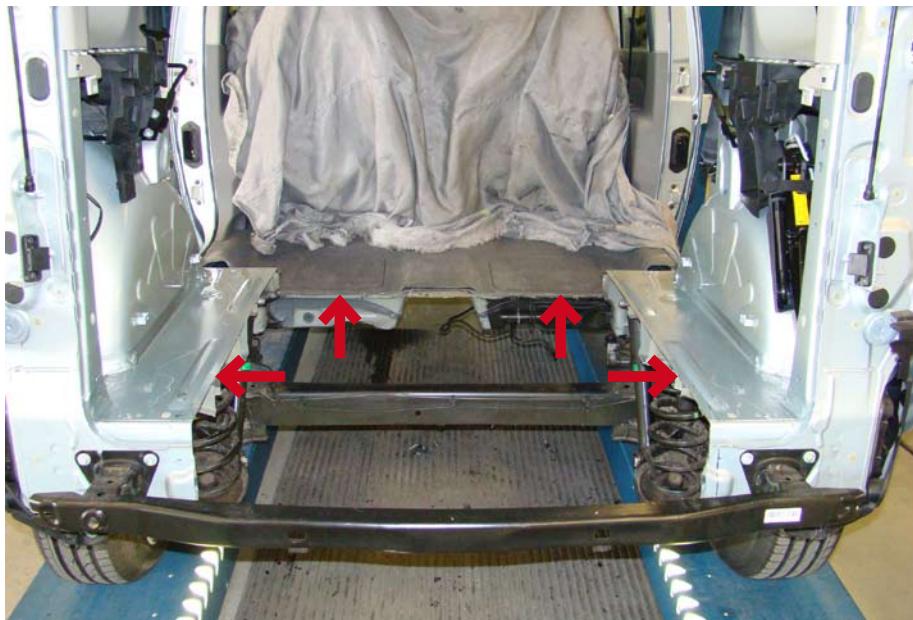
**Tie plates****Preparations:**

- Prepare the parts of the lowered floor with sandpaper (P60).
- Clean the indicated parts with **Cleaner I**.
- Wait 5 minutes.



**Tie plates****Preparations:**

- Treat the parts with Prep M (only metal parts).
- Wait 5 minutes.



**IMPORTANT:** To glue the different parts you need to use the triangular nozzle (included in the kit).

**IMPORTANT:** Keep 10 mm distance between the sawing edges and the glue.

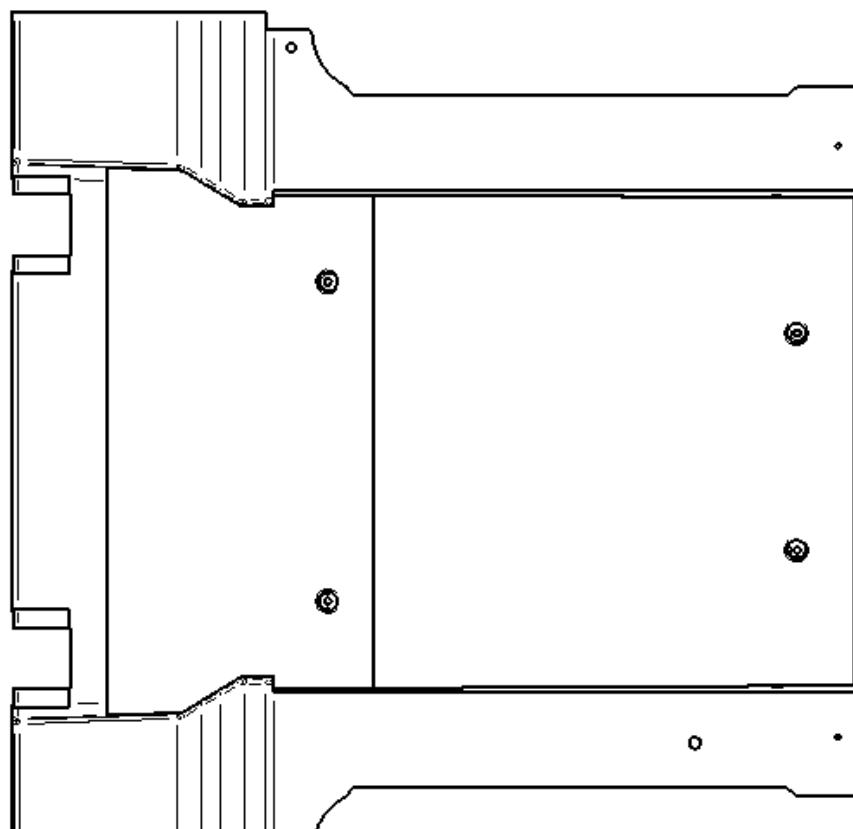
**IMPORTANT:** Put the glue on the vehicle in such a way that the triangle stands up and according the described pattern.



Apply the glue onto the vehicle in closed shapes.



Apply the glue in the front in a closed rectangle.



Now carefully lower the floor in the vehicle and press it downwards.



**IMPORTANT:** Put grease on the bolts, to isolate it from the glue.

Put 4 M8\*40 bolts with washers (included in the kit) and the original attachment eyes in the pre-drilled holes of the lowered floor. Place a protection cap on each bolt (included in the kit).

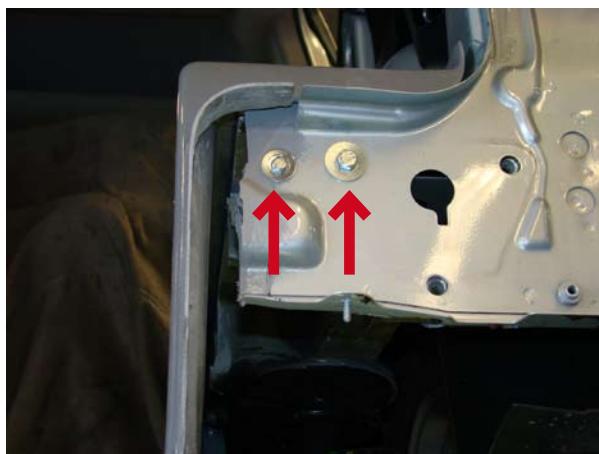


CHECK

**21Nm**

Tighten the two front bolts with 21 Nm. The two rear bolts you need to tighten until both edges are aligned with each other.

**IMPORTANT:** Now you can remove the steel bumper (keep the dismounted parts).



On each side put two bolts, one M6\*30 with washer and one M8\*30 with washer (included in the kit), in the holes.

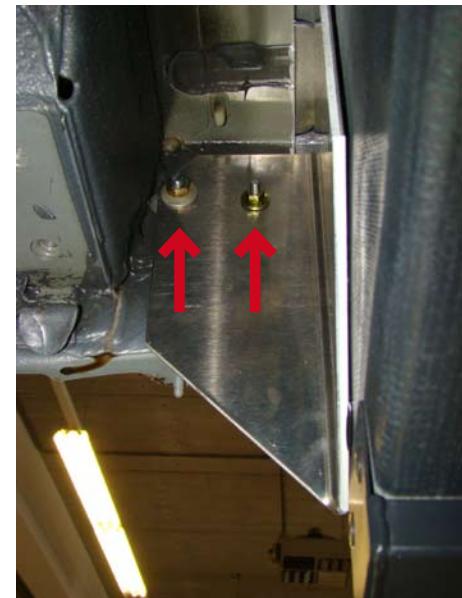
Now apply the glue in three stripes on the tie plates and place them at each inner side of the vehicle on the earlier placed bolts. Finally put two nuts with washers on the ends of the bolts (included in the kit), M6 8Nm and M8 21 Nm.

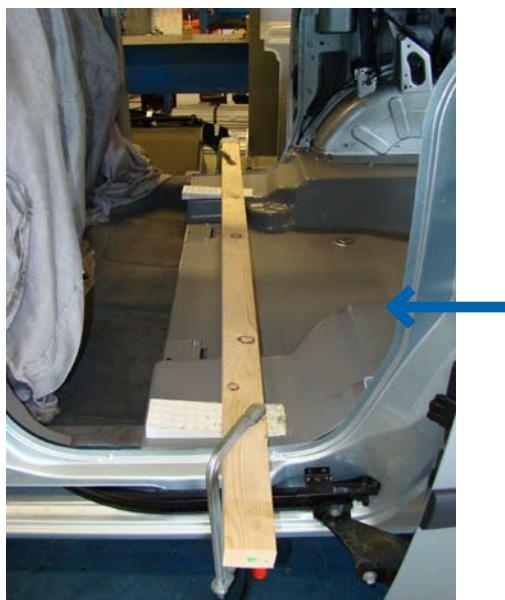


CHECK

**8Nm**

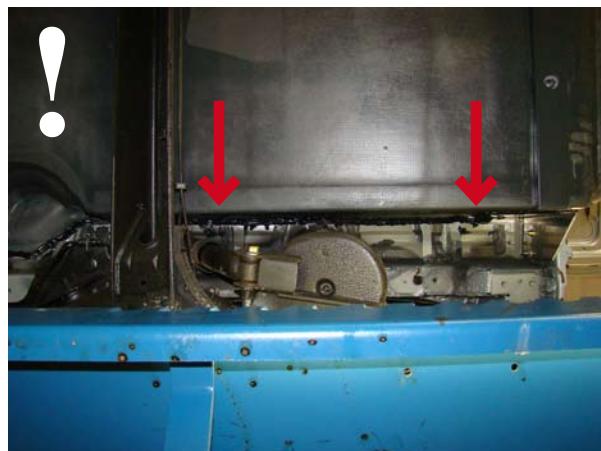
CHECK

**21Nm**



At the front you need to place a wooden beam with protection for the floor, to press the lowered floor downwards.

Finally you need to fill the open places up with glue, around the tie plates and underneath the car (the sides and front).





Fill the open place at the back of the vehicle up with glue (both sides).



The opening between the lowered floor and the body of the vehicle must be filled up with glue (both sides). Place tape over the edge.



Use glue to fill up the open space. When the glue is dry you can remove the tape.

**IMPORTANT:** After bonding the lowered floor into the vehicle you must wait 48 hours before using the car. This way, you will get the maximum strength of the glue!!

## 6.2 Fuel tank &amp; Exhaust

**!All versions!**

**Important:** When you place the new fuel hoses, make sure that the hoses not fold or have any contact with sharp edges.

**Extending the electrical line of the float element:**

Extend the electrical line of the float element (part is in the kit), connect the connector plugs.



For Diesel continue at page 38

For Petrol continue at page 53

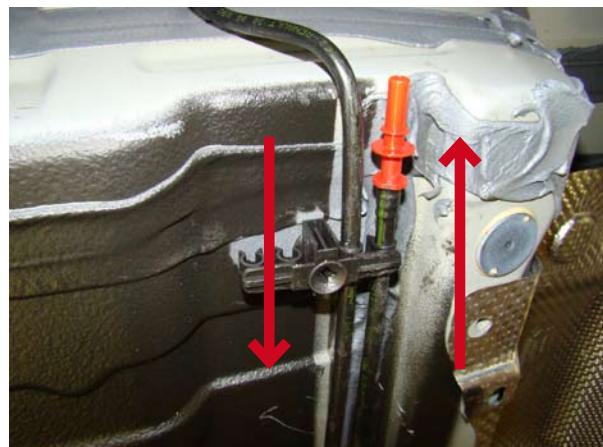
## 6.2.1 Fueltank Diesel

**!Without particulate filter!**



Cut the fuel pipes as indicated in the picture, keep the attaching nipples. Place a brass tube shell in each fuel pipe, one 10 \* 1 mm in the white hose and one 8 \* 1 mm in the black hose (included in the kit).

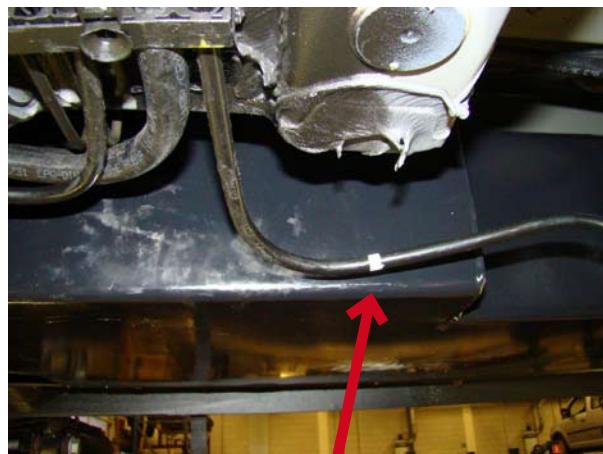
**!With particulate filter!**



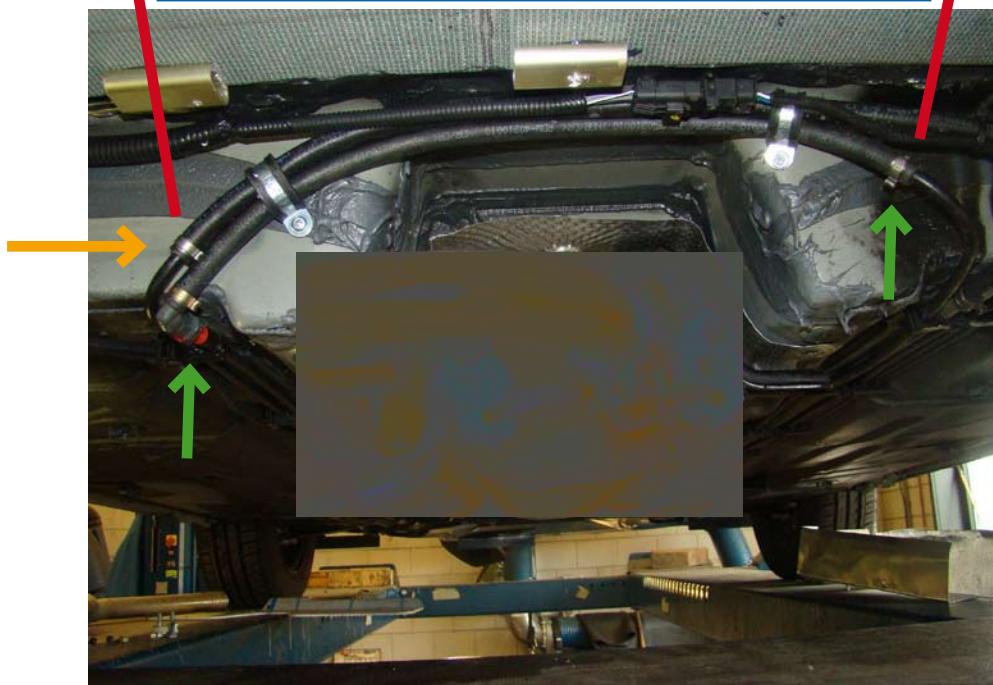
Move the fuel pipes forward as indicated in the picture.



Place and shuffle the distance keepers of the cooling unit so, that the pipes not make contact with each other and the body of the vehicle. Use the extra distance keepers (included in the kit).

**!With particulate filter!**

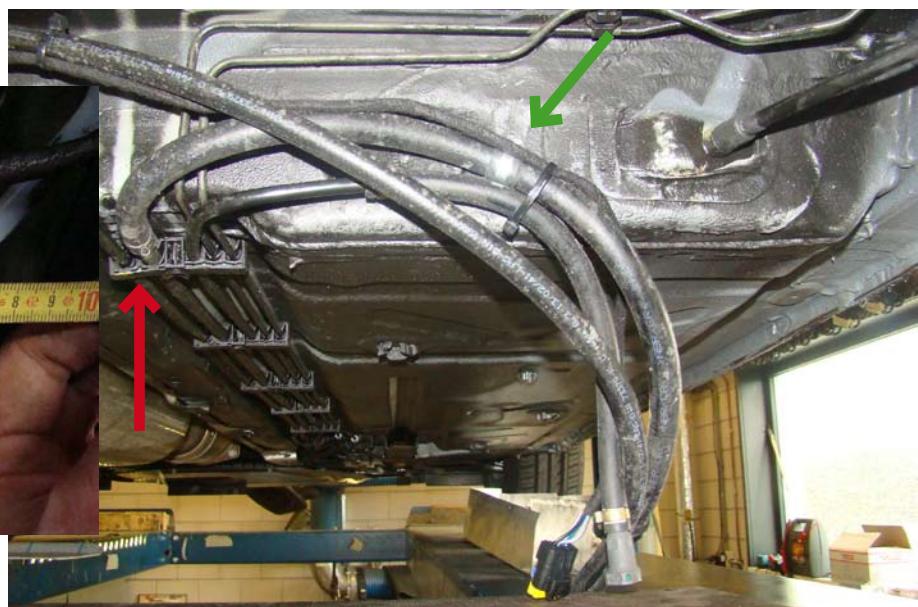
Cut the fuel pipes as indicated in the pictures. Place a brass tube shell (8 \* 1 mm, included in the kit) in both pipes.  
**Keep both attaching nipples!!**

**Extending both fuel pipes:**

Mount the attaching nipple, from the fuel pipe cut earlier, on the 470 mm Ø 8 mm hose, using an ear clamp 15,5 (included in the kit). Connect the attaching nipple to the red receiver and connect the other side with the fuel pipe to the right, using an ear clamp 15,5 (included in the kit).

Mount the attaching nipple, from the fuel pipe cut earlier, on the 1270 mm Ø 8 mm hose, using an ear clamp 15,5 (included in the kit). Connect the other side to the fuel pipe on the left, using an ear clamp 15,5 (included in the kit).

Fasten both fuel pipes to the body of the vehicle, using two clamps with rubber (22 mm) and blind rivets (included in the kit).

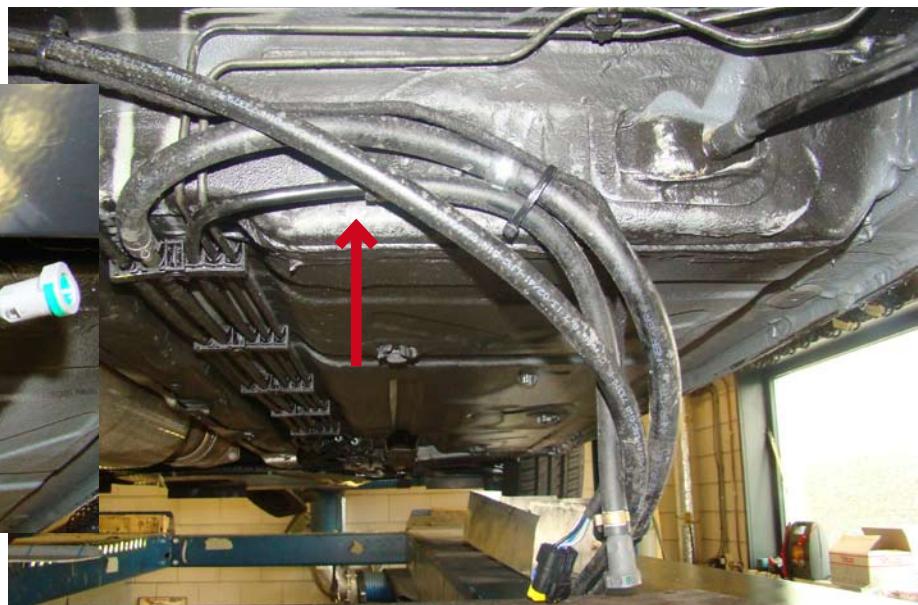
**!With particulate filter!**

Cut the white fuel pipe at the point that is indicated in the picture. Place a brass tube shell (10 \* 1 mm) in the fuel pipe (included in the kit) and keep the attaching nipple.

Mount the attaching nipple to the 900 mm Ø 11 mm hose, using an ear clamp 17,5 (included in the kit).

Connect the other end of the fuel pipe to the white fuel pipe using an ear clamp 17,5 (included in the kit).

Mount the fuel pipe with a clamp with rubber (15 mm) and a blind rivet (included in the kit) to the body of the vehicle.



Cut the fuel pipe at the point that is indicated in the picture. Place a brass tube shell (8 \* 1 mm) in the fuel pipe (included in the kit) and keep the attaching nipple.

Mount the attaching nipple to the 300 mm Ø 8 mm hose, using an ear clamp 15,5 (included in the kit). Connect the other side of the fuel pipe to the fuel pipe, that is indicated in the picture, using an ear clamp 15,5 (included in the kit).

Mount the fuel pipe with a clamp with rubber (15 mm) and a blind rivet (included in the kit) to the body of the vehicle.



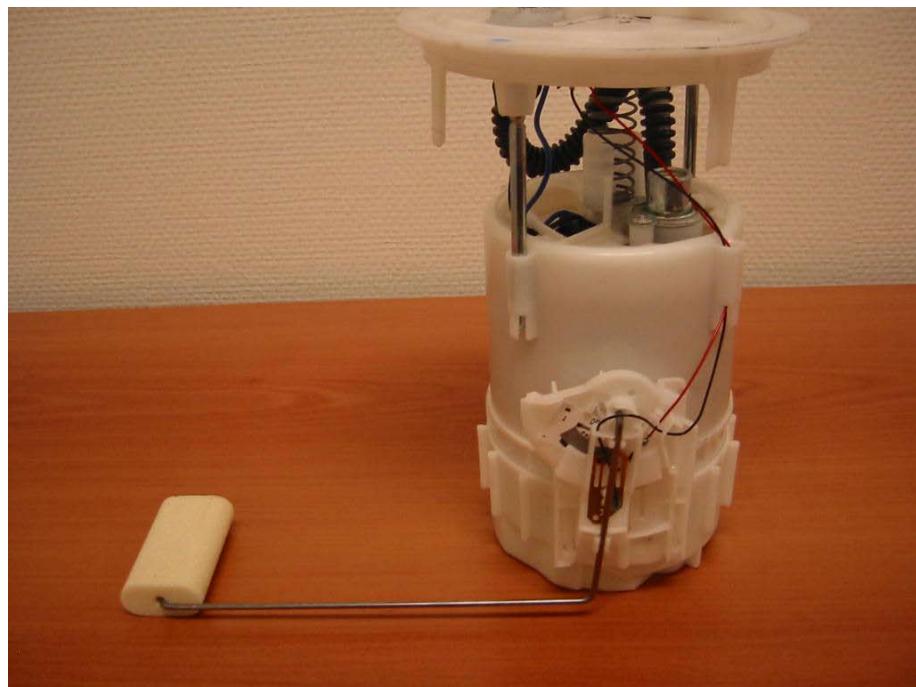
**Bierman**

**!All versions!**



**Replacing the float arm:**

Carefully remove the original float arm and replace it by the new one (included in the kit).



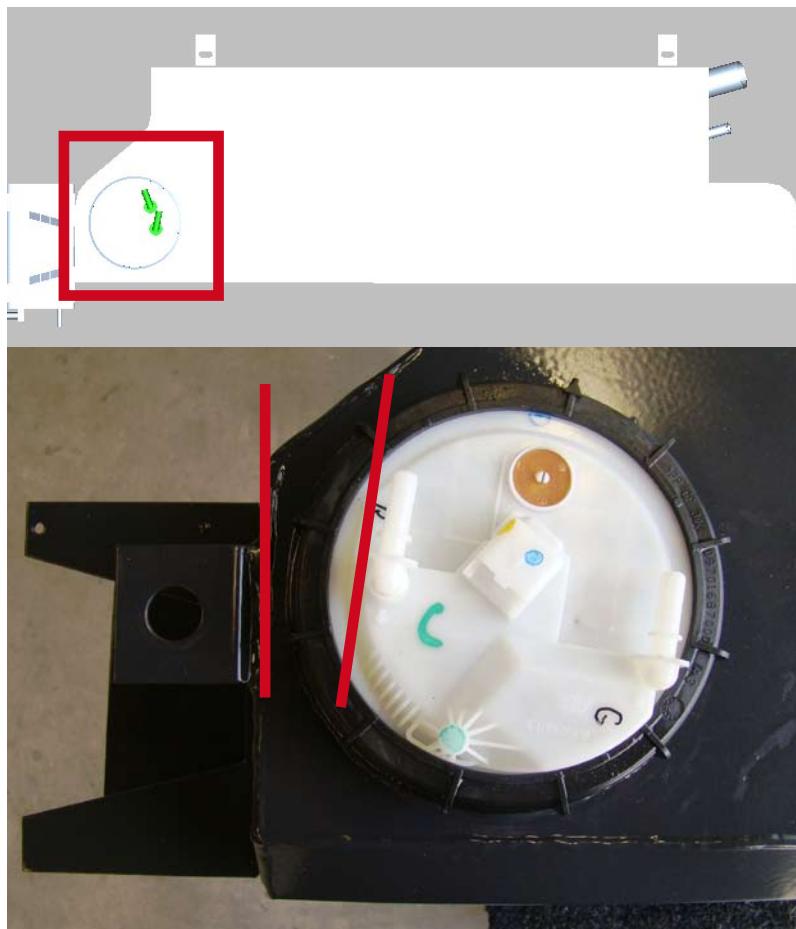
**!All versions!**

**Important:** The float element must be placed in the right way. The fuel level gauge will now give a correct reading.

**Important:** When replacing the float element you must use the new ring (included in the kit). Make sure the new ring is mounted on the right way!!



Place the float element in the fuel tank as indicated in the picture (DIESEL and PETROL are the same).



**Air relieve valve**  
!!Petrol!!



**Seal cap**  
!!Diesel!!



If the car is a DIESEL version you need to remove the air relieve valve and replace it by the seal cap (included in the kit) by using lock compound.



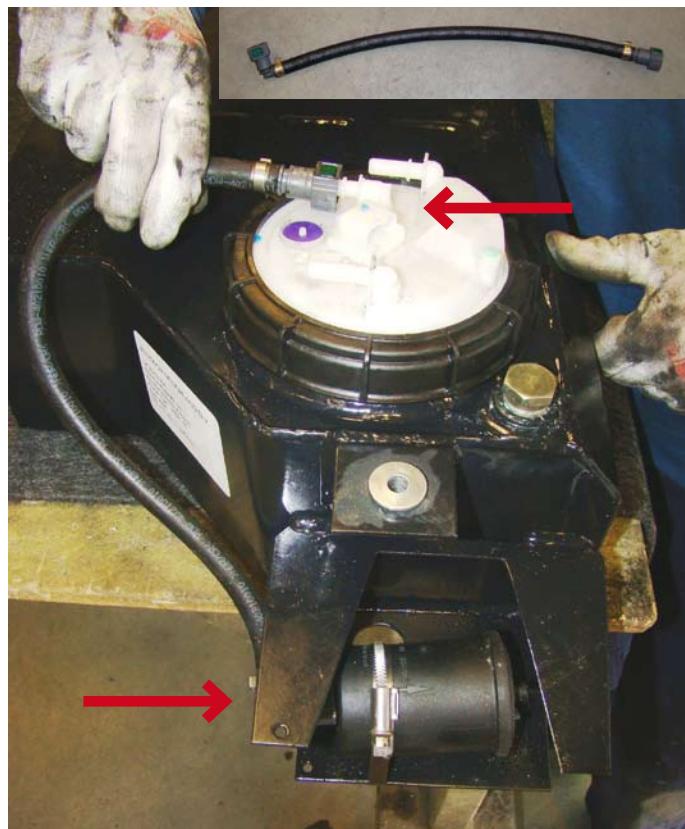
**Bierman**

**!With particulate filter!**

Place the original fuel filter on the new fuel tank, using a hose clamp (included in the kit).

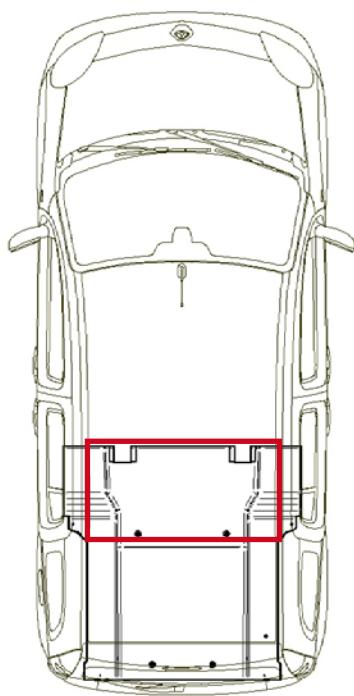


The original fuel pipe that is coming from the float element and goes to the filter needs to be replaced by a new one, only keep both attaching nipples!!  
Mount both attaching nipples to a side of the 400 mm Ø 8 mm hose, using ear clamps 15,5 (included in the kit).



Place the earlier made fuel pipe with one side to the middle connector of the float element. Attach the other attaching nipple to the left side of the fuel filter.

**!All versions!**



**Mounting the fuel tank:**  
Place the tank on a support.



Place a rubber tube and two washers (included in the kit) in each hole of the fuel tank, as indicated in the picture above.

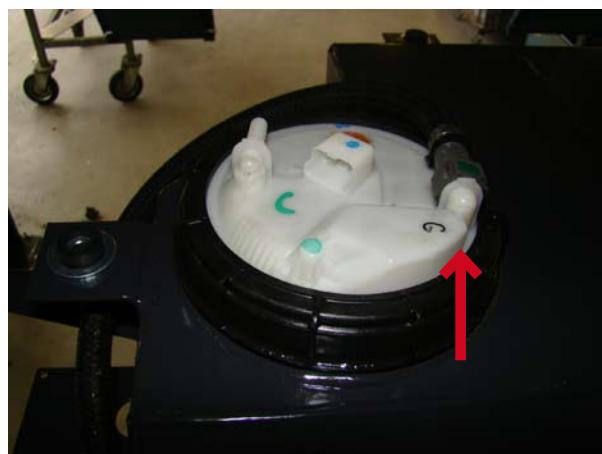
**!Without particulate filter!**



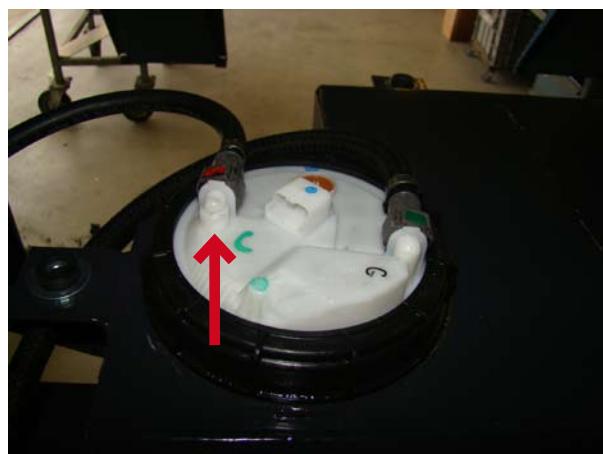
Mount the red attaching nipple to the 1270 mm Ø 8 mm hose, using an ear clamp 15,5 (included in the kit).



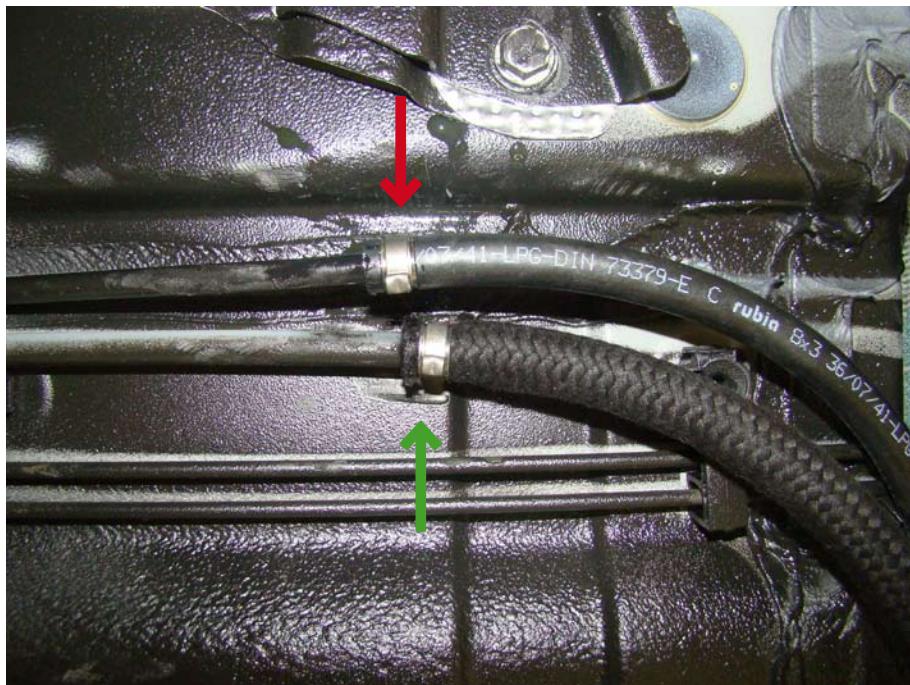
Mount the green attaching nipple to the 900 mm Ø 11 mm hose, using an ear clamp 17,5 (included in the kit).



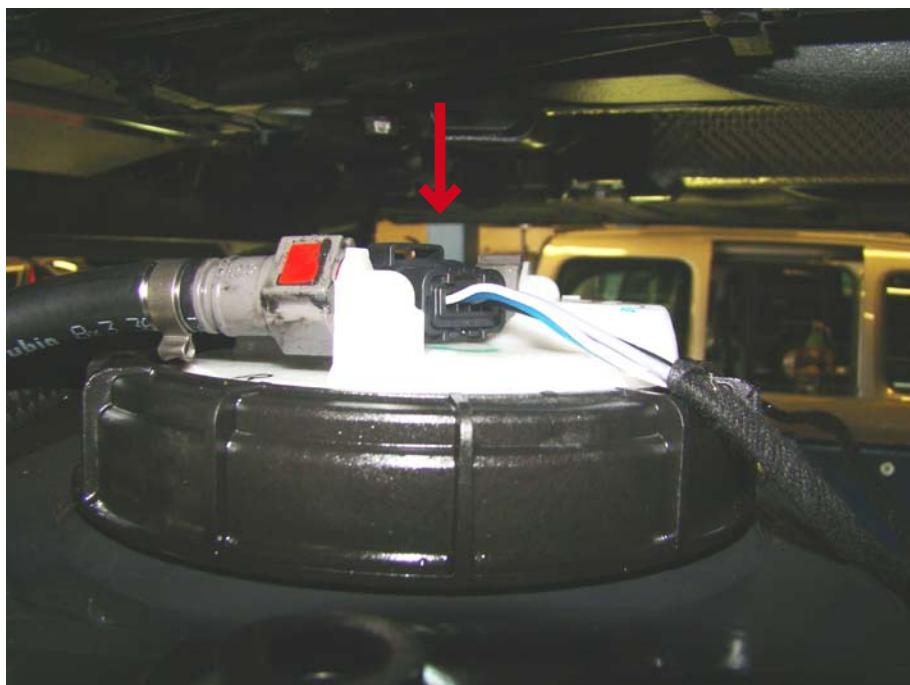
Attach the green attaching nipple to the float element as indicated in the picture.



Attach the red attaching nipple to the float element as indicated in the picture.

**!Without particulate filter!**

Connect the Ø 8 mm hose with the black original fuel pipe, using an ear clamp 15,5 (included in the kit). Connect the Ø 11 mm hose with the white original fuel pipe, using an ear clamp 17,5 (included in the kit).



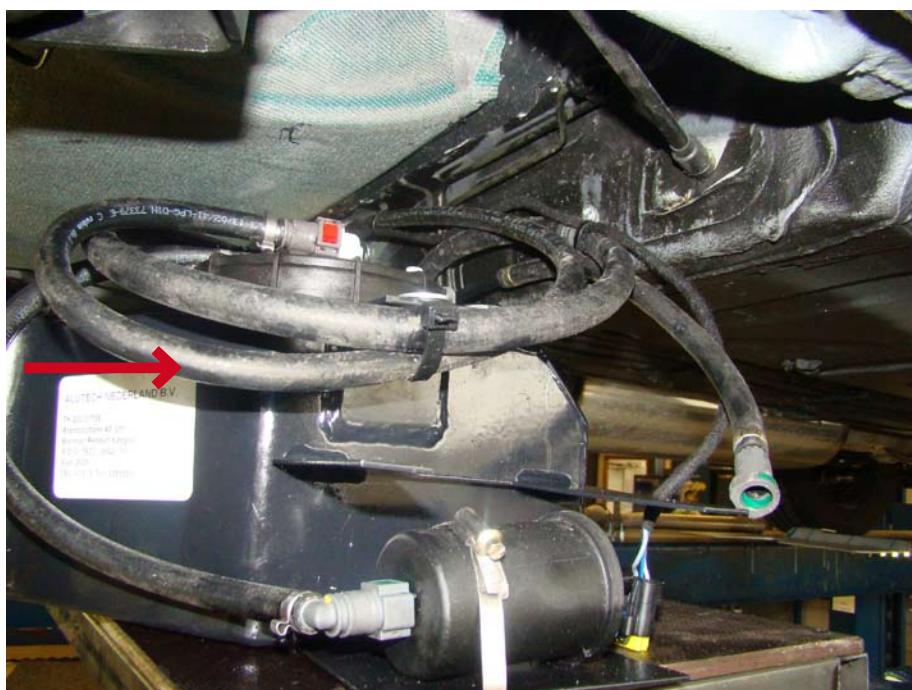
Connect the electrical line with the float element.

**Important:** Use cable ties (included in the kit) to keep all fuel pipes together.

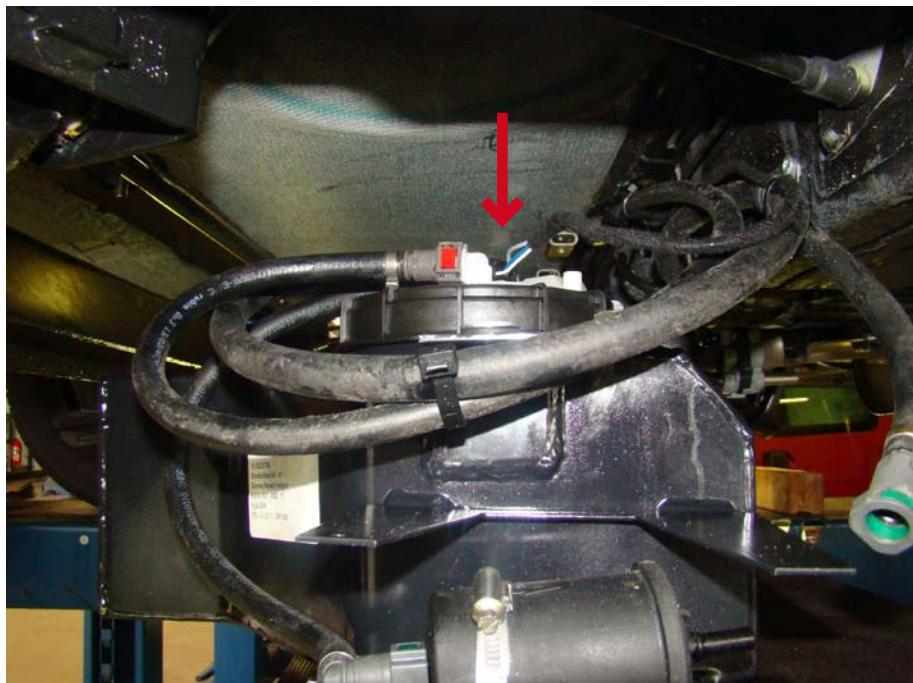
**!With particulate filter!**



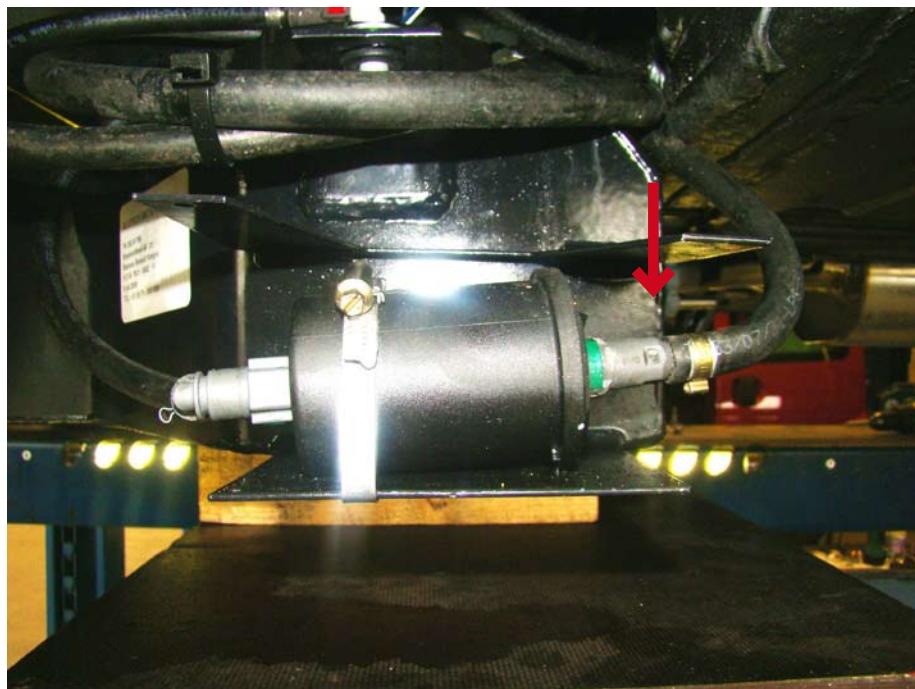
Connect the Ø 11 mm hose to the rear connector of the float element.



Connect the Ø 8 mm hose with the red attaching nipple to the front connector of the float element.

**!With particulate filter!**

Connect the electrical line with the float element.



Connect the Ø 8 mm hose with the green attaching nipple to the fuel filter (right connection).

**Important:** Use cable ties (included in the kit) to keep all fuel pipes together.

**!All versions!**

**Important:** For mounting the hoses use the hose clamps with elastic reserves, original Renault parts (large one: 7703083431/small one: 7703083427!!



Attach the original attaching nipple of the fuel tank to the hose you see in the picture, by using the small hose clamp (included in the kit).



Attach the side with the nipple to the top connection next to the lowered floor.

**!All versions!**

**Important:** For mounting the hoses use the hose clamps with elastic reserves, original Renault parts (large one: 7703083431/small one: 7703083427!!



Connect the hose that you see in the picture, by using a large hose clamp (included in the kit), to the filler opening of the vehicle.



**!All versions!**

Now it is time to fasten the fuel tank under the vehicle. Use four bolts with the parts that are indicated in the picture at the right (included in the kit). **At the side of the float element you need to place a heat shield to protect the cable of the hand brake (see picture's).** Make sure that no electrical or fuel line is stuck between the lowered floor and the fuel tank.



**21Nm**

CHECK

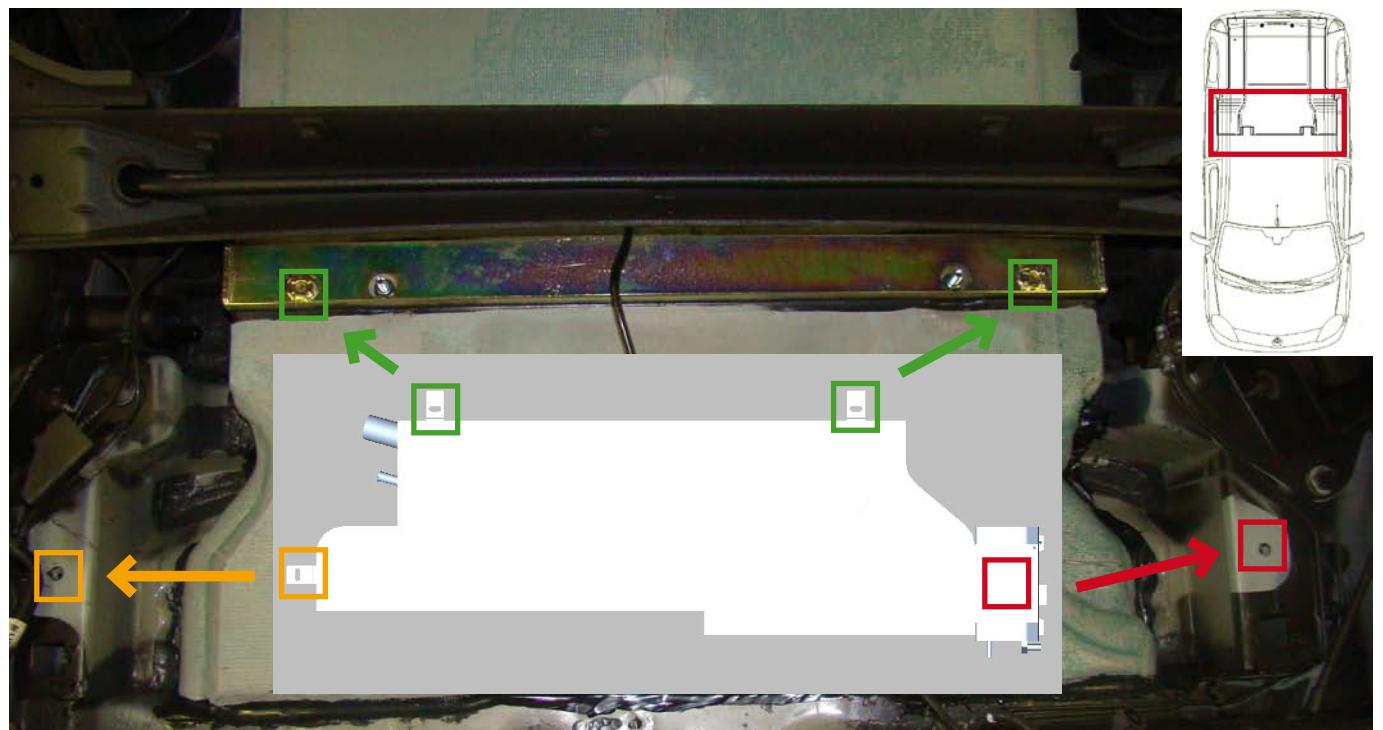


**Important:** When mounting the fuel tank make sure you put loctite and use a lock ring on the four bolts!!

Bolt M8\*40

Bolt M8\*40 with heat shield (see picture's) →

Bolt M8\*35



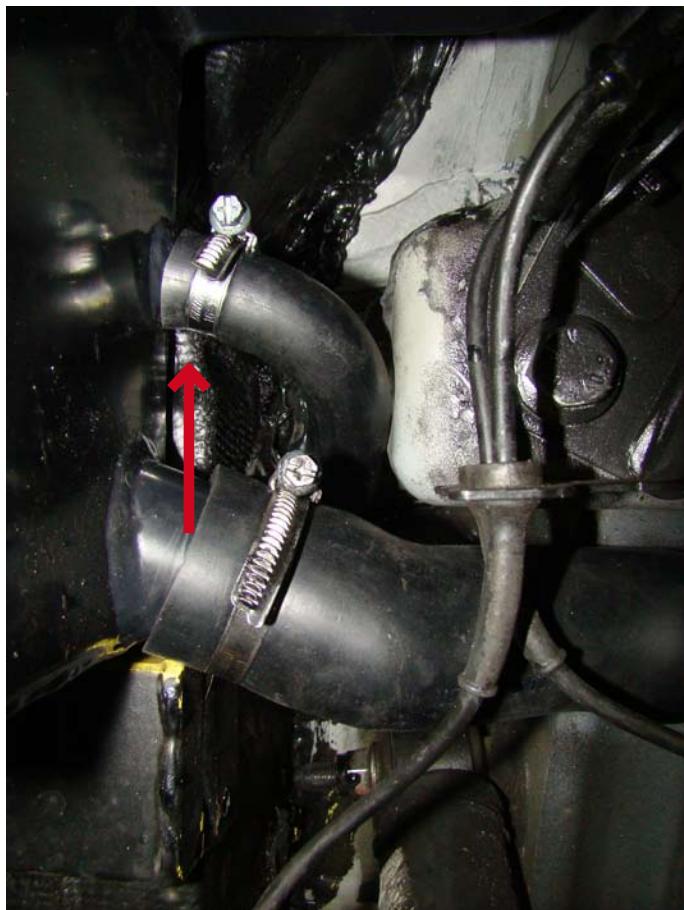
**Bierman**

**!All versions!**

**Important:** For mounting the hoses use the hose clamps with elastic reserves, original Renault parts (large one: 7703083431/small one: 7703083427!!



Connect the  $\varnothing$  40 mm hose, by using a large hose clamp (included in the kit), to the large opening on the fuel tank.

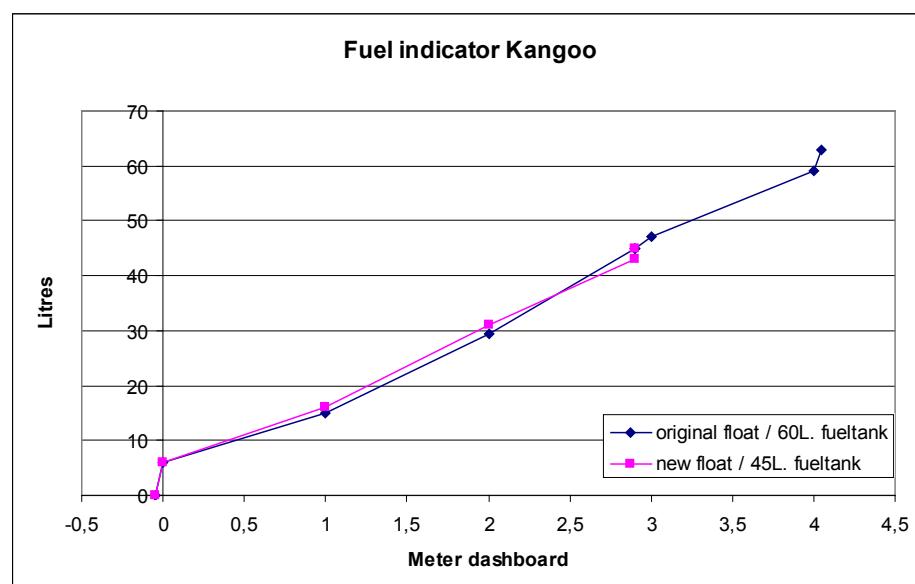


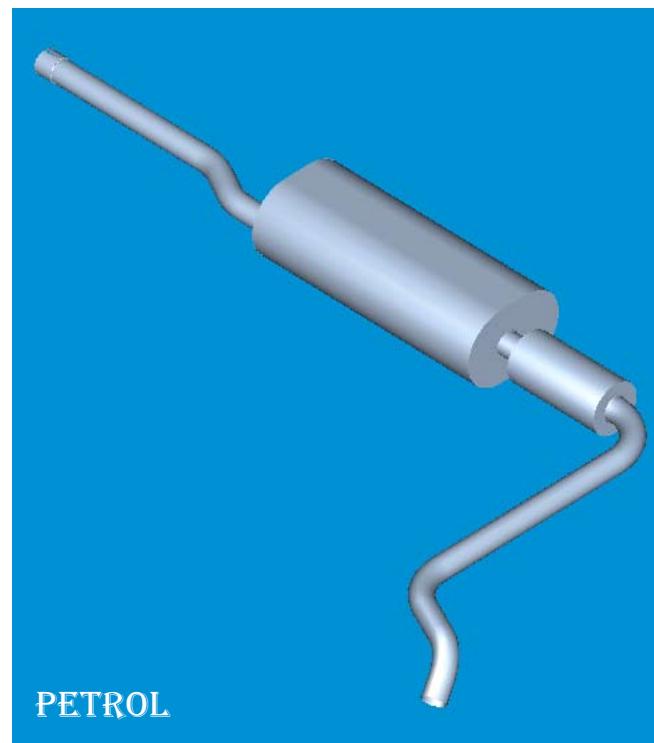
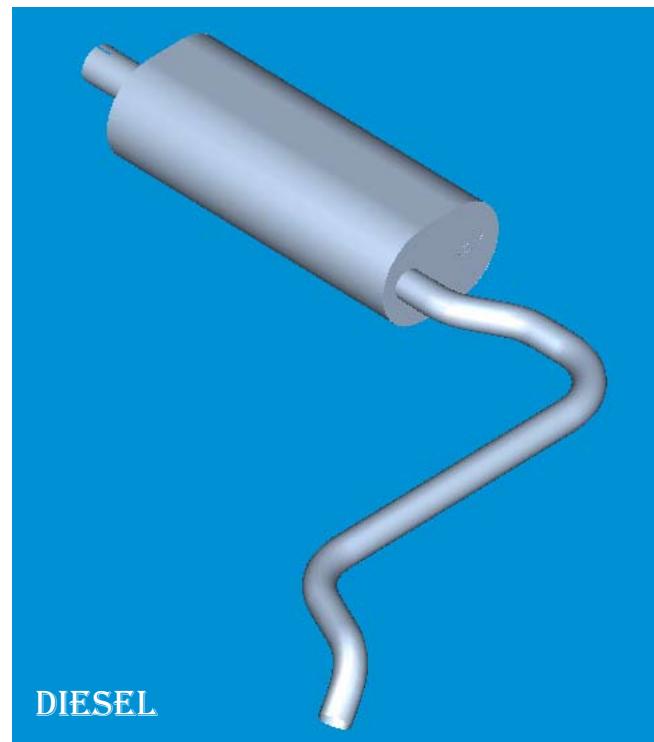
Connect the  $\varnothing$  16 mm hose, by using a small hose clamp (included in the kit), to the small opening on the fuel tank.

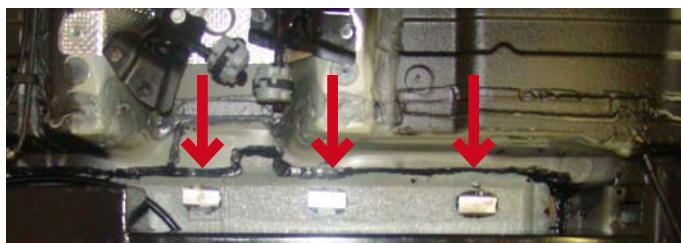
**!All versions!**

**Important:** The new fuel tank is full when the fuel gauge on the dashboard stands on 3/4, as indicated in the picture!! From this point the fuel gauge will give the correct fuel level of the fuel tank!!

Capacity of the new fuel tank: 45 litre.







Drill three holes (5 mm) through the heat shield for the blind rivets.



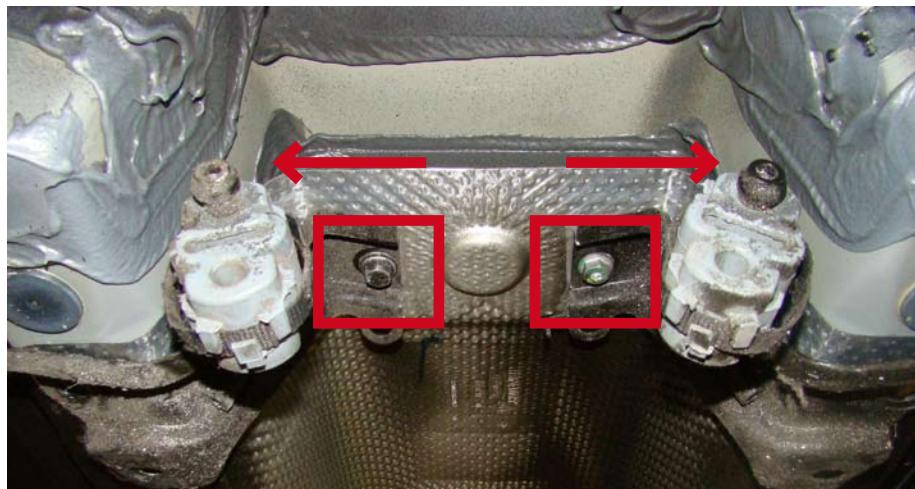
Fasten the heat shield with three blind rivets.

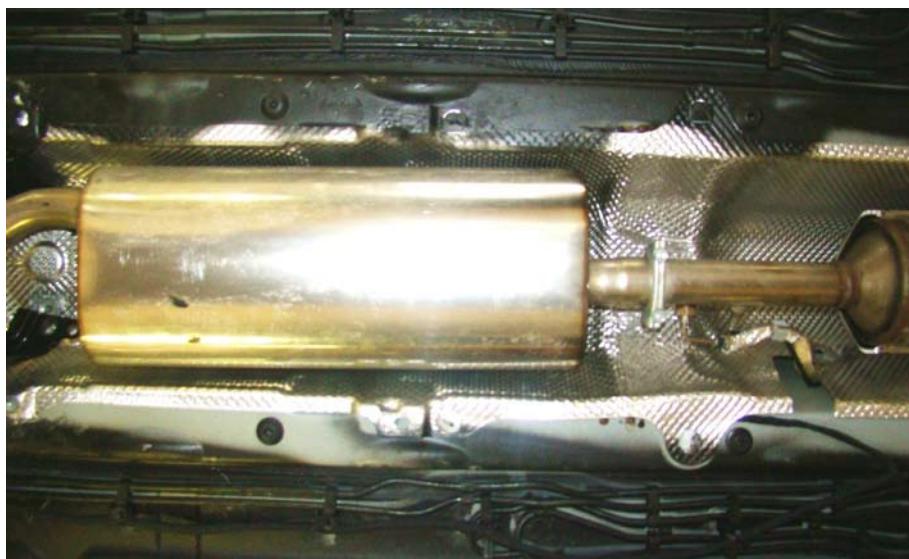


First remount the original mounting brackets (with original bolts) for the exhaust, with two bolts.

Make sure you place the two brackets as close as possible to the heat screen.

**21Nm** CHECK



**IMPORTANT:**

When the center heat shield is not standard on the car, you need to order it at your local Renault dealer!!

**Part number:**  
8200521320

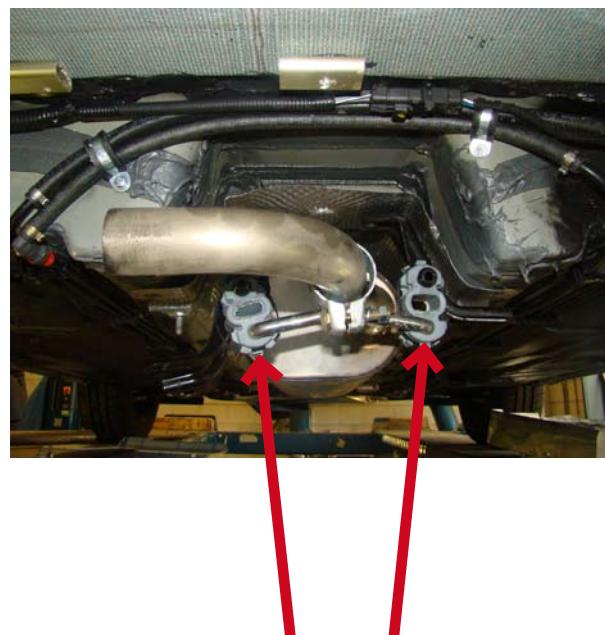
Now you can fit the new exhaust silencer to see where you need to saw through the exhaust pipe.

Saw through the exhaust pipe and place the exhaust silencer on one side on the original exhaust (with a clamp) and on the other side on the mounting bracket.

**Important:** Make sure that the clearance between the exhaust silencer and the heat shield is at least 20 mm!!

**20mm**

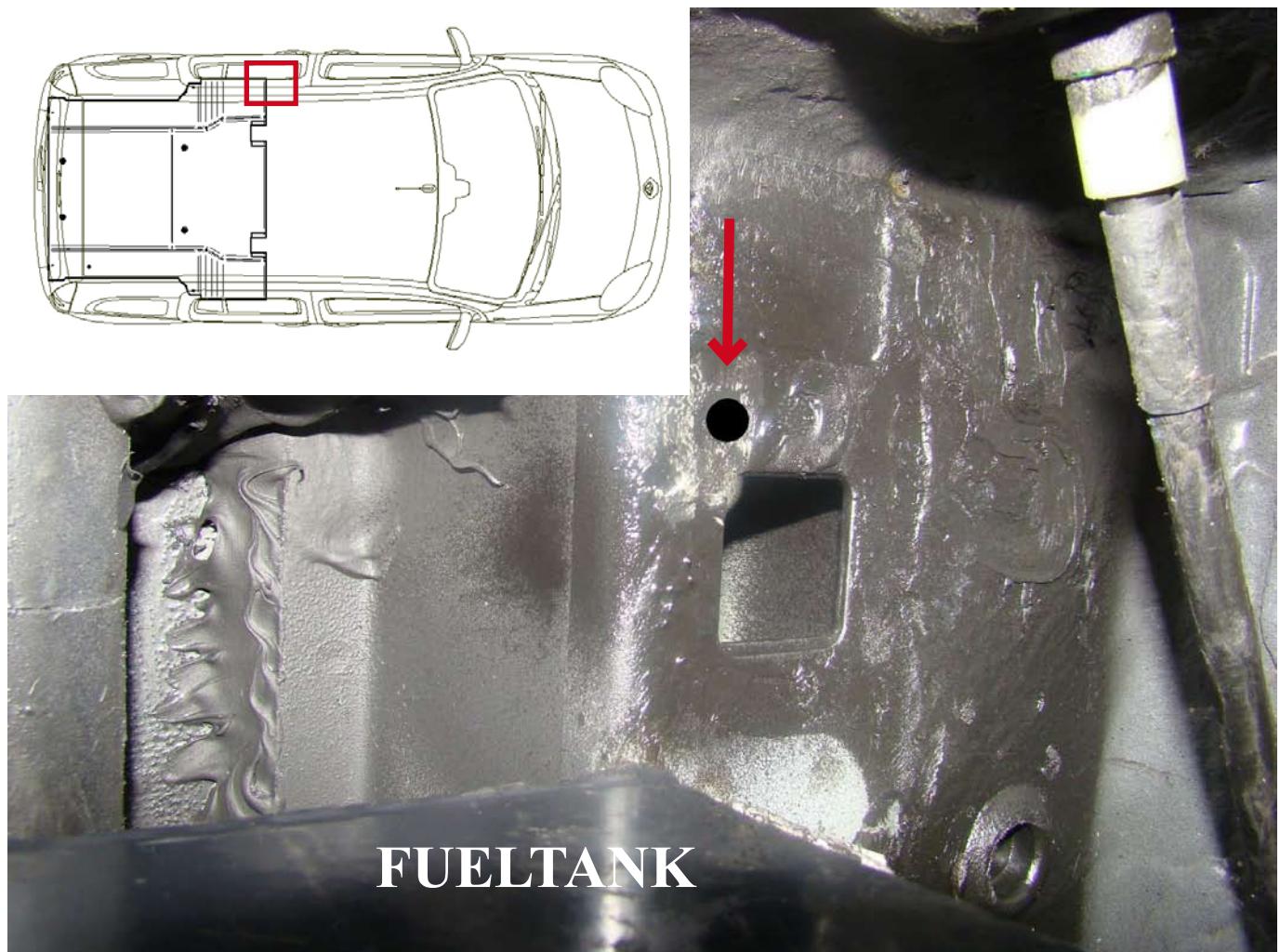
CHECK



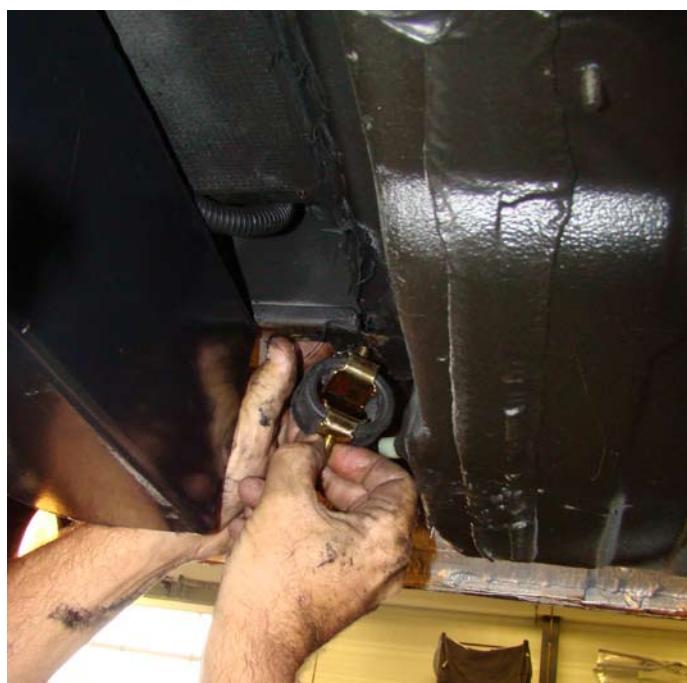
Put a toothed lock washer on each axle (included in the kit).



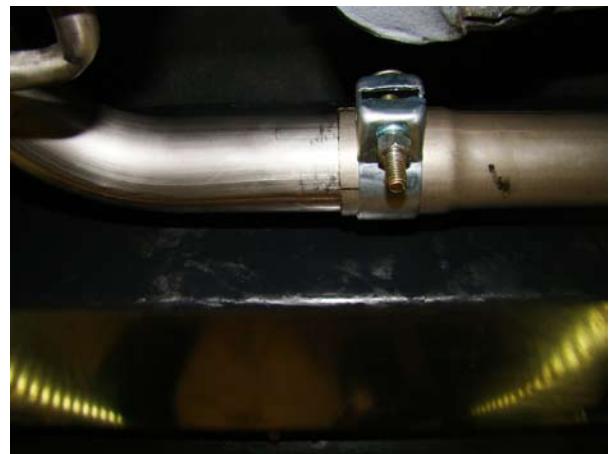
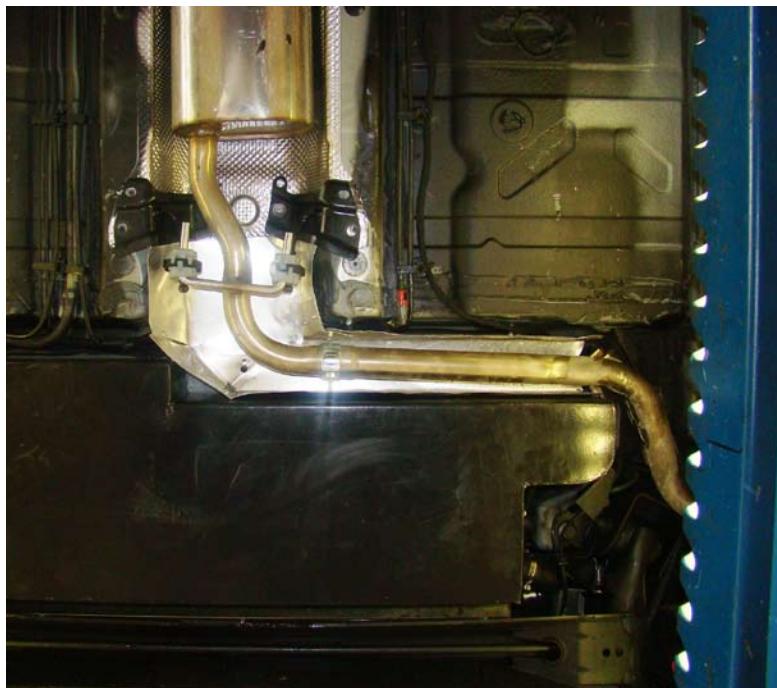
**Bierman**



Drill a hole of 8mm for the other mounting bracket,  
treat the hole against corrosion (included in the kit).

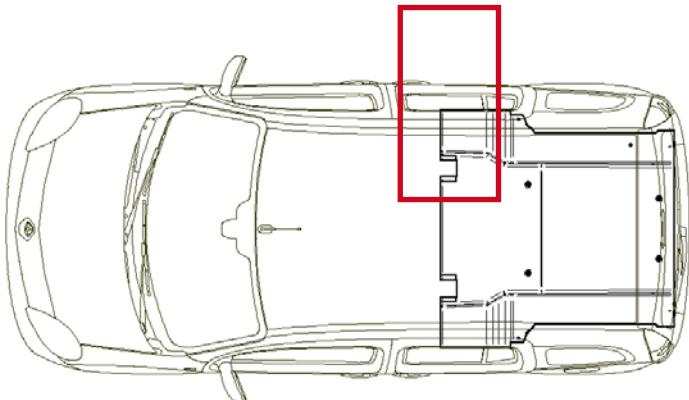
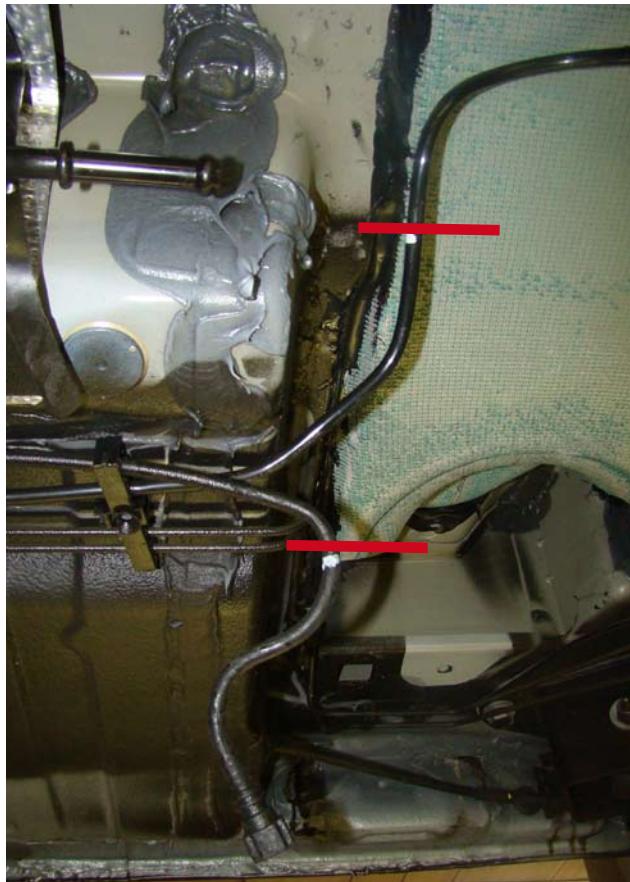


Mount the bracket by using a M8 jam nut,  
included in the kit.



Mount the end part of the exhaust on the silencer (with a clamp) and mount the bracket on the end part by using a M8 jam nut, included in the kit.

6.2.3 Fueltank Petrol



**Cutting the fuel pipes:**

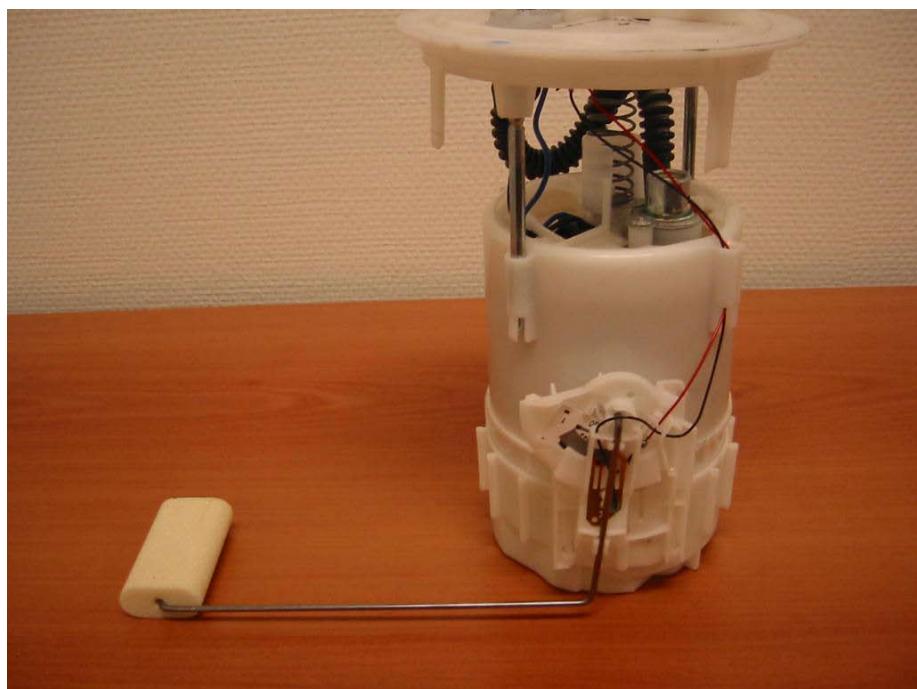
Cut the fuel pipes on the places that are indicated in the pictures and put an brass tube shell in both pipes (keep the attaching nipples, see pictures below, and mark the pipes so you can see where the nipples are coming from in a later stadium of the conversion).

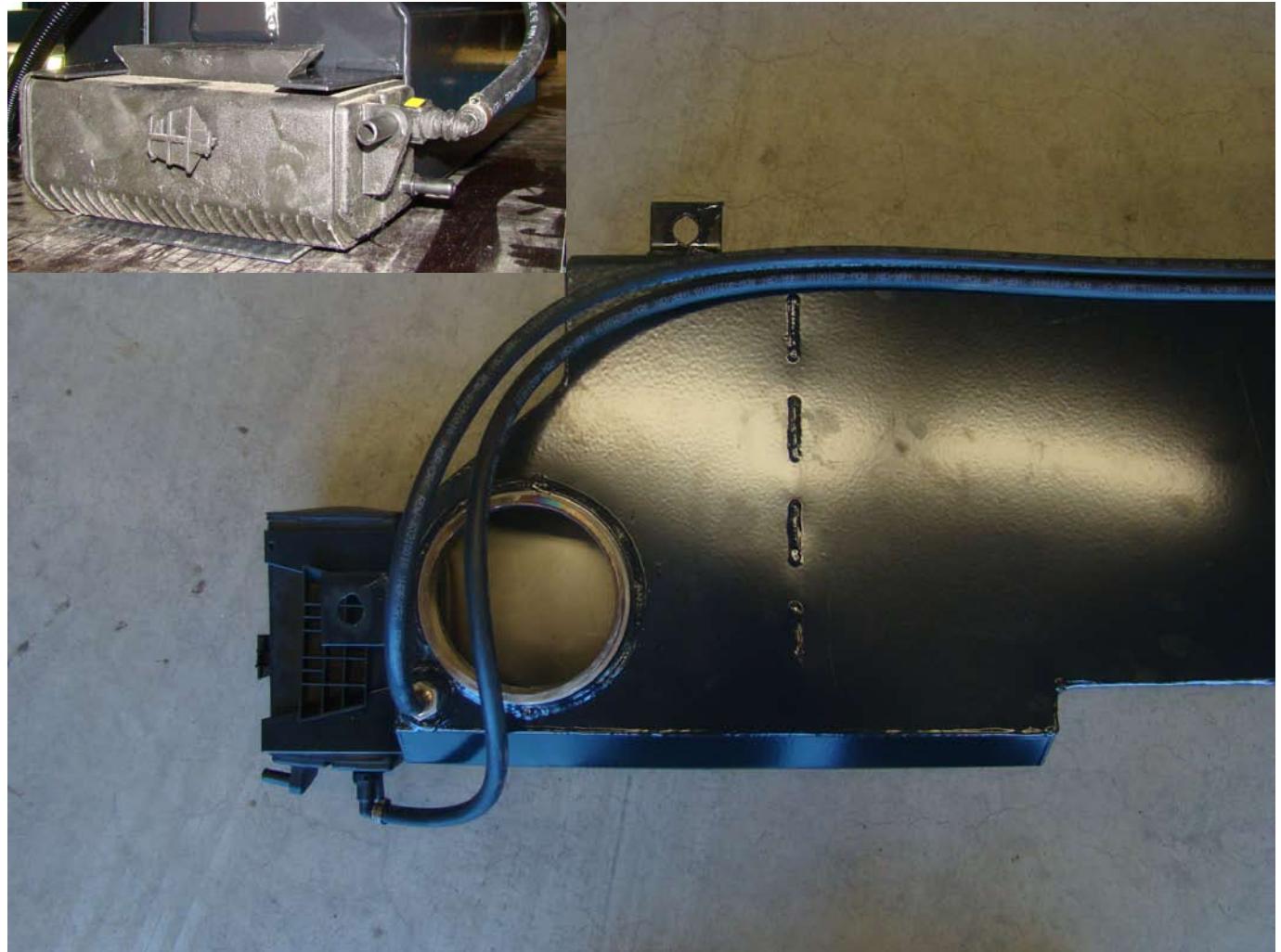




**Replacing the float arm:**

Carefully remove the original float arm and replace it by the new one (included in the kit).





Attach the 2550 mm Ø 6 mm hose on the nipple of the seal cap, using an ear clamp (all parts are included in the kit).

Place the original carbon canister on the new fuel tank.

Attach the original yellow attaching nipple of the carbon canister on the 2550 mm Ø 6 mm hose, by using an earclamp (all parts are included in the kit).

Attach the connector to the top connection of the carbon canister.

Place the hoses as indicated in the picture above.



**Important:** The float element must be placed in the right way. The fuel level gauge will now give a correct reading.



**Important:** When replacing the float element you must use the new ring (included in the kit). Make sure the new ring is mounted on the right way!!

Place the float element in the fuel tank as indicated in the picture (DIESEL and PETROL are the same).

If the car is a DIESEL version you need to remove the seal cap with nipple and replace it by the seal cap (included in the kit) by using lock compound.



Seal cap with nipple  
!!Petrol!!



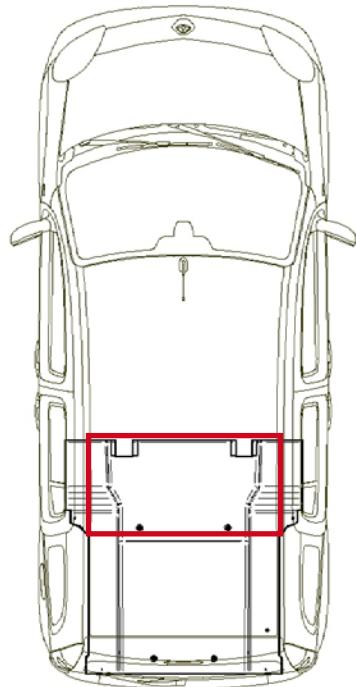
Seal cap  
!!Diesel!!



Place a rubber tule and two washers (included in the kit) in each hole of the fuel tank, as indicated in the picture above.



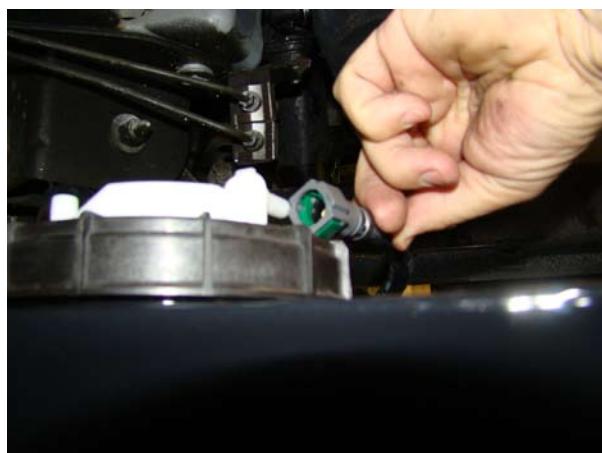
**Bierman**



**Mounting the fuel tank:**  
Place the tank on a support.



Connect the connector plug, of the earlier extended electrical cable, to the float element.



Attach the original green attaching nipple on the 870 mm Ø 8 mm hose by using an ear clamp (included in the kit). Attach the side of the nipple to the float element (connection with green dot). Attach the other side to the fuel pipe where the green connector is coming from, by using an ear clamp (included in the kit).



**Bierman**

**Important:** For mounting the hoses use the hose clamps with elastic reserves, original Renault parts (large one: 7703083431/small one: 7703083427!!



Attach the original attaching nipple of the fuel tank to the hose you see in the picture, by using the small hose clamp (included in the kit).



Attach the side with the nipple to the top connection next to the lowered floor.

**Important:** For mounting the hoses use the hose clamps with elastic reserves, original Renault parts (large one: 7703083431/small one: 7703083427!!



Connect the hose that you see in the picture, by using a large hose clamp (included in the kit), to the filler opening of the vehicle.

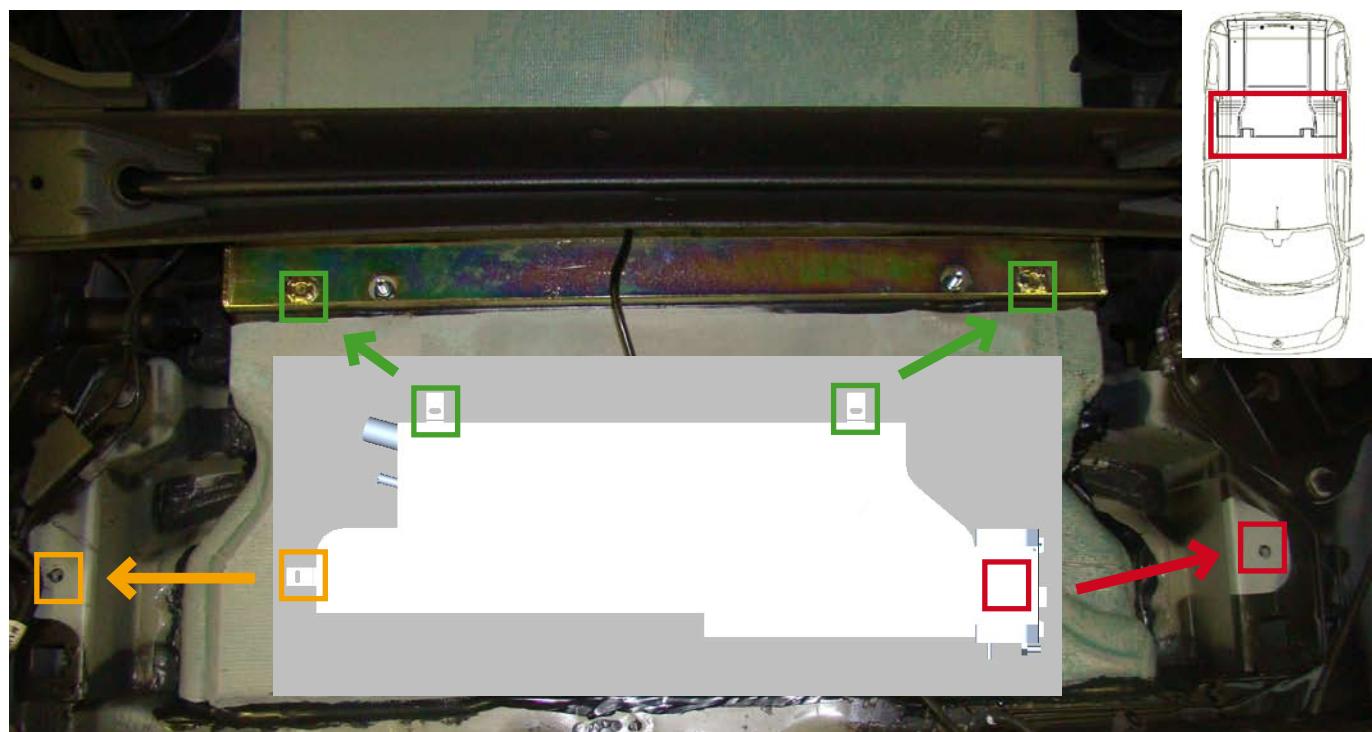


Now it is time to fasten the fuel tank under the vehicle. Use four bolts with the parts that are indicated in the picture at the right (included in the kit). **At the side of the float element you need to place a heat shield to protect the cable of the hand brake (see picture's).** Make sure that no electrical or fuel line is stuck between the lowered floor and the fuel tank.



**Important:** When mounting the fuel tank make sure you put loctite and use a lock ring on the four bolts!!

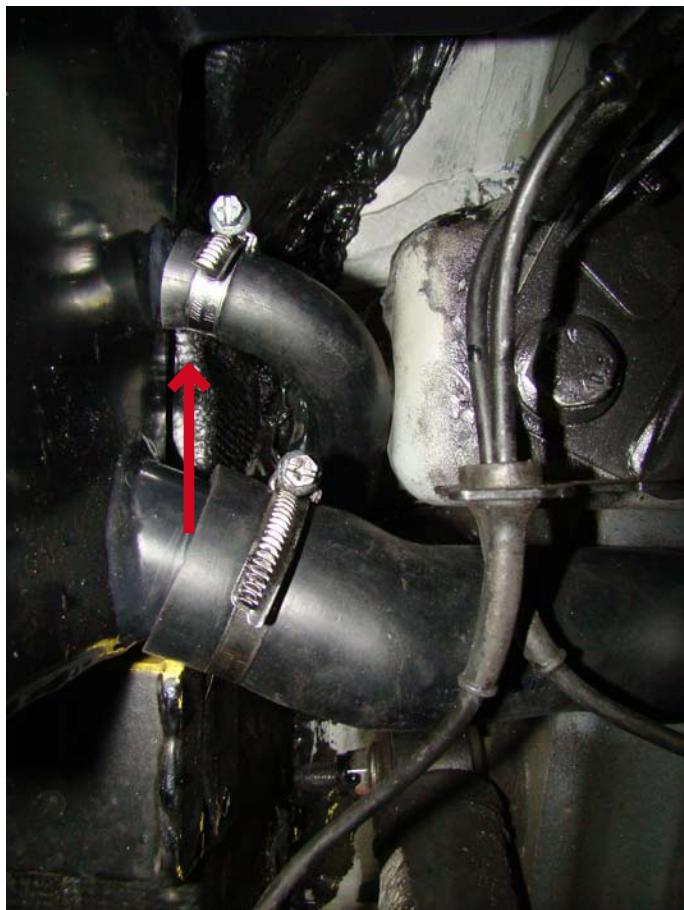
- Bolt M8\*40
- Bolt M8\*40 with heat shield (see picture's) →
- Bolt M8\*35



**Important:** For mounting the hoses use the hose clamps with elastic reserves, original Renault parts (large one: 7703083431/small one: 7703083427!!



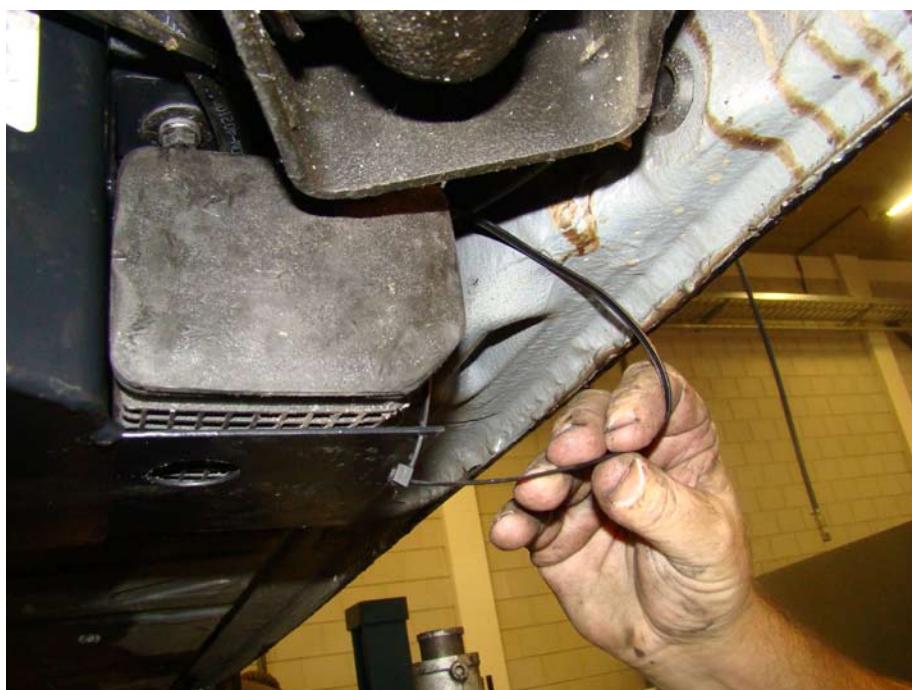
Connect the Ø 40 mm hose, by using a large hose clamp (included in the kit), to the large opening on the fuel tank.



Connect the Ø 16 mm hose, by using a small hose clamp (included in the kit), to the small opening on the fuel tank.

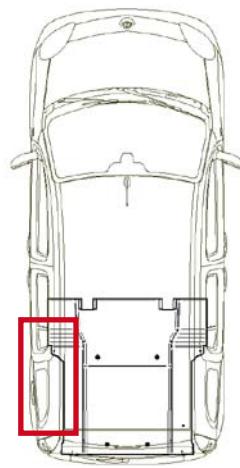


Attach the original black attaching nipple on the 340 mm Ø 8 mm hose (included in the kit) by using an ear clamp (included in the kit). Attach the side of the nipple to the lower connection on the carbon canister. Attach the other side to the fuel pipe where the black connector is coming from, by using an ear clamp (included in the kit).



Fasten the carbon canister by using an cable tie (included in the kit).

**Dismount the left wheel arch.**



Attach both earlier placed hoses to the filler pipe, using cable ties (included in the kit).



Place the air relieve valve (see picture, included in the kit) on the place that is indicated in the picture.

Attach the hose that comes from the fuel tank to the bottom, using an ear clamp (included in the kit).

Attach the hose from the carbon canister to the top, using an ear clamp (included in the kit).

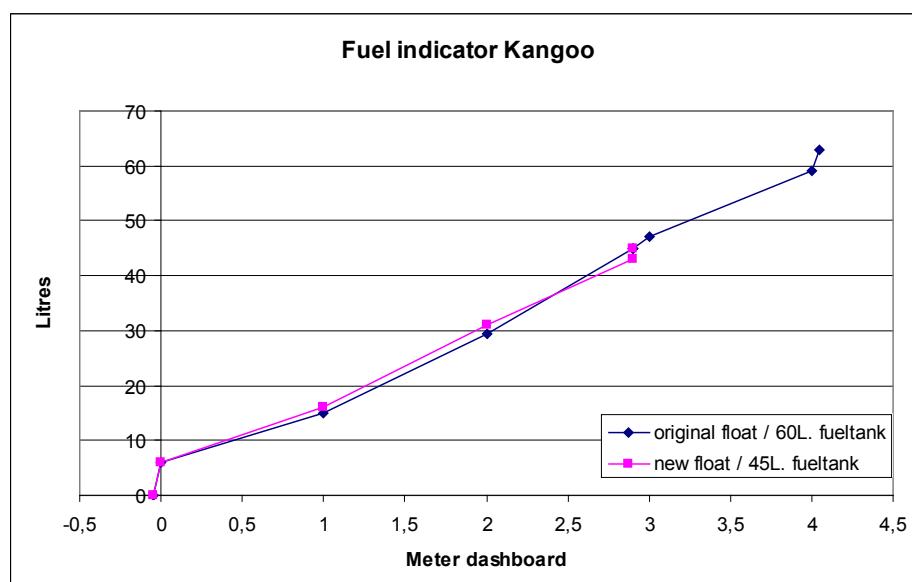
**Mount the left wheel arch.**



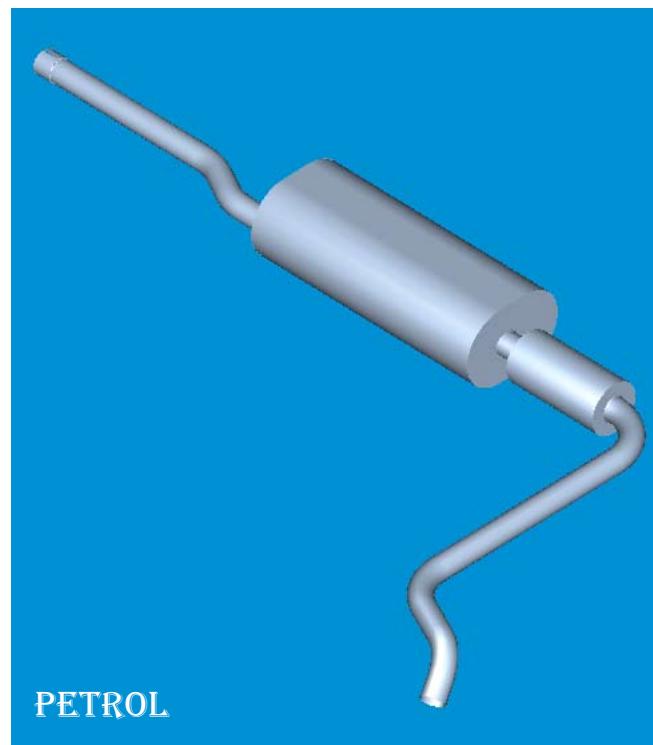
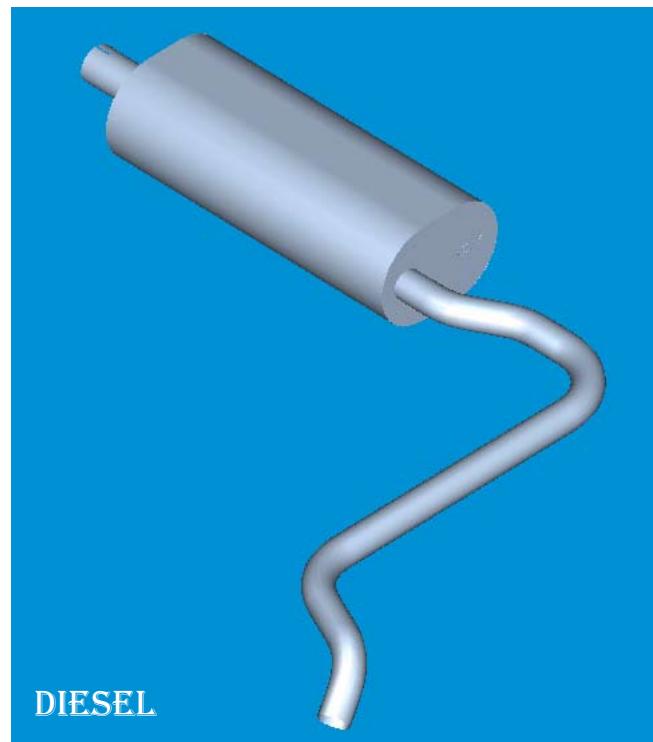
**Bierman**

**Important:** The new fuel tank is full when the fuel gauge on the dashboard stands on 3/4, as indicated in the picture!! From this point the fuel gauge will give the correct fuel level of the fuel tank!!

Capacity of the new fuel tank: 45 litre.



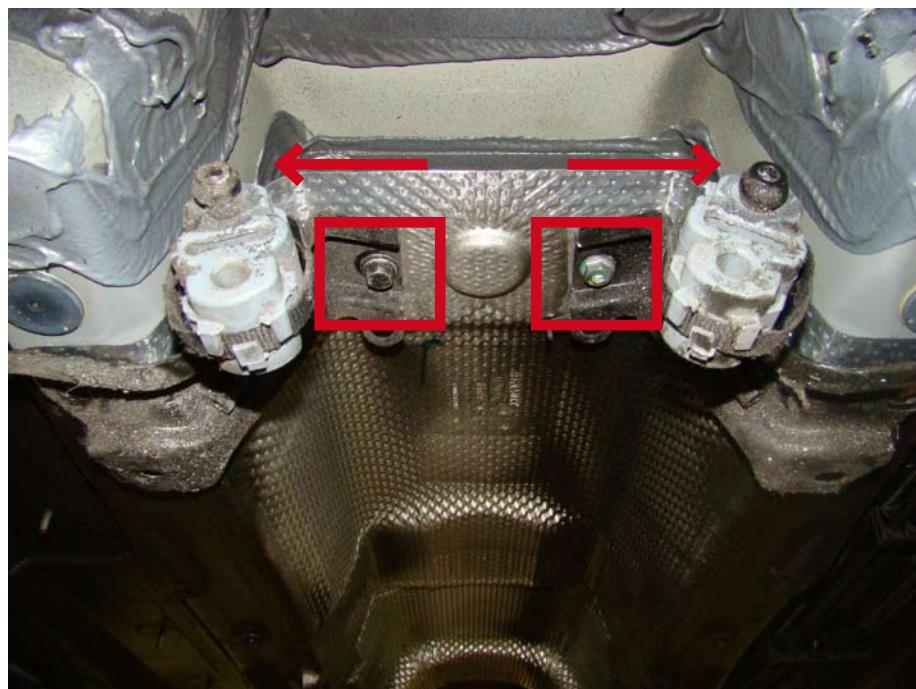
6.2.4 Exhaust Petrol





First remount the original mounting brackets (with original bolts) for the exhaust, with two bolts. Make sure you place the two brackets as close as possible to the heat shield.

**21Nm** CHECK



 **Bierman**

**IMPORTANT:**

When the center heat shield is not standard on the car, you need to order it at your local Renault dealer!!

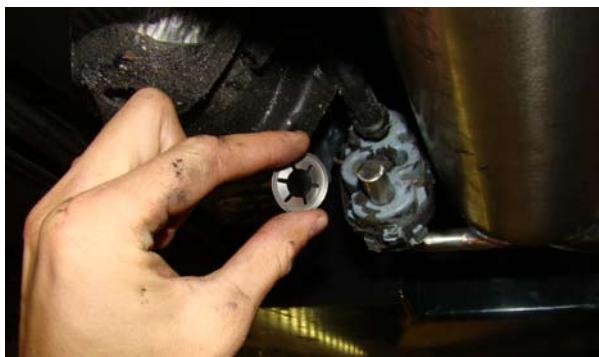
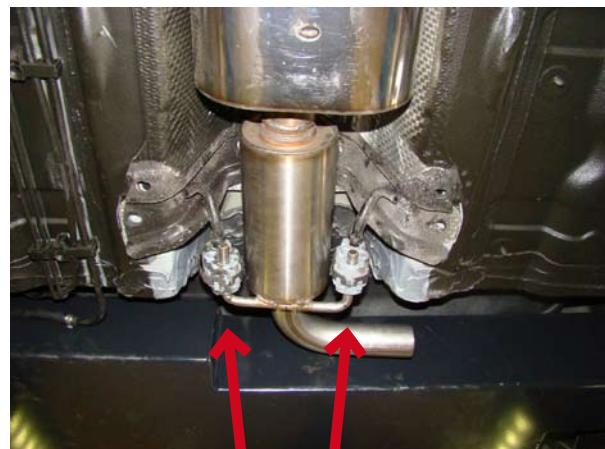
**Part number:**  
**8200521320**

Now you can fit the new exhaust silencer to see where you need to saw through the exhaust pipe.

Saw through the exhaust pipe and place the exhaust silencer on one side on the original exhaust (with an clamp) and on the other side on the mounting bracket.

**Important:** Make sure that the clearance between the exhaust silencer and the heat shield is at least 20 mm!!

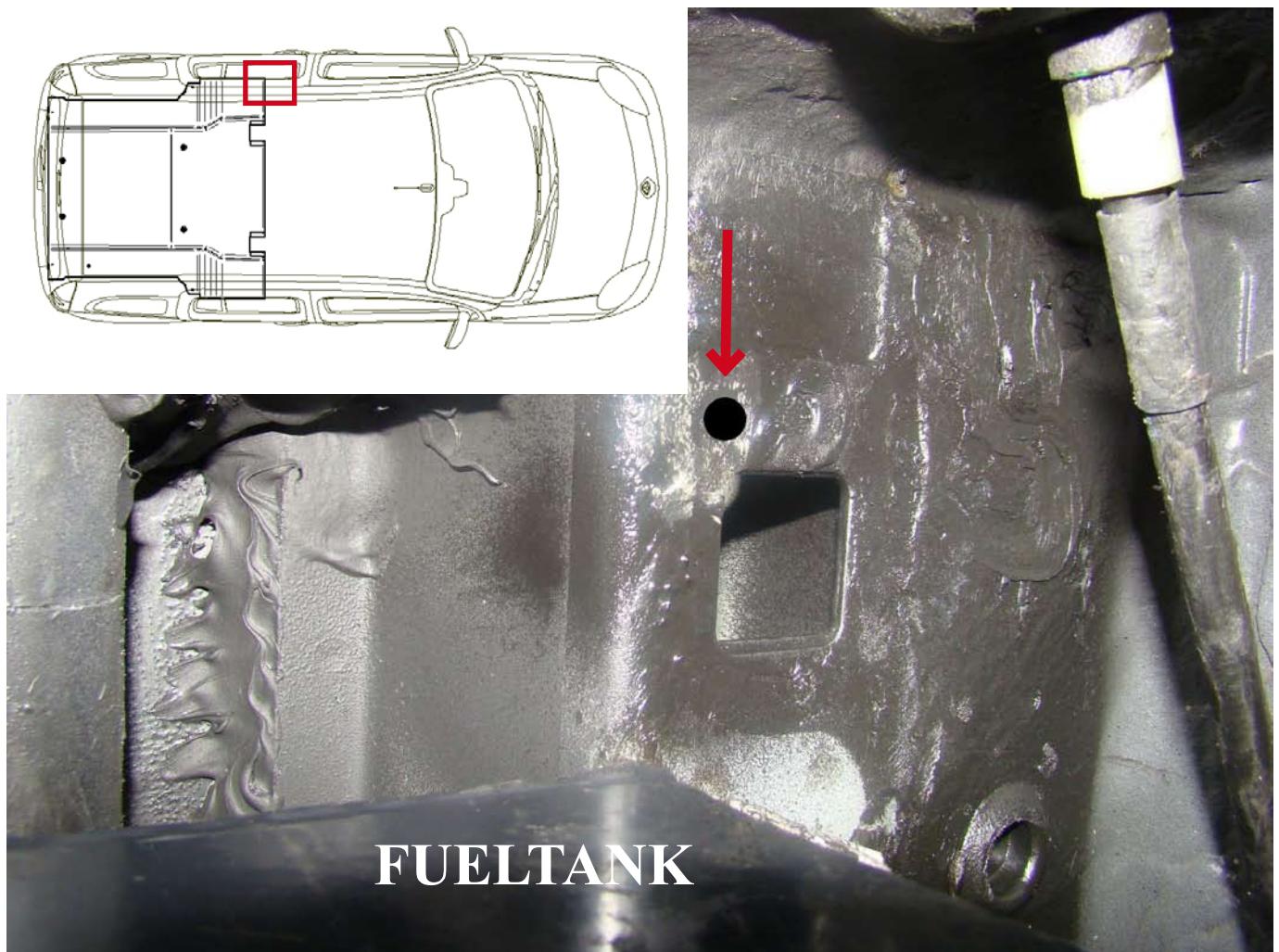
CHECK

**20mm**

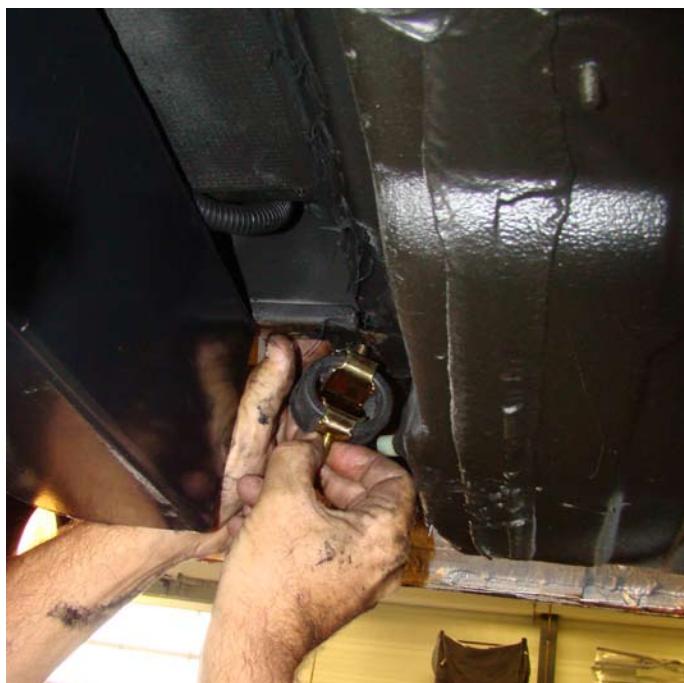
Put a toothed lock washer on each axle (included in the kit).



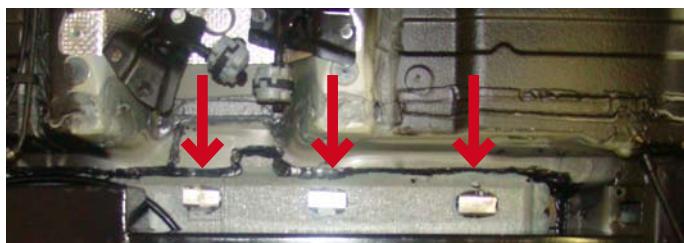
**Bierman**



Drill a hole of 8 mm for the other mounting bracket,  
treat the hole against corrosion (included in the kit).



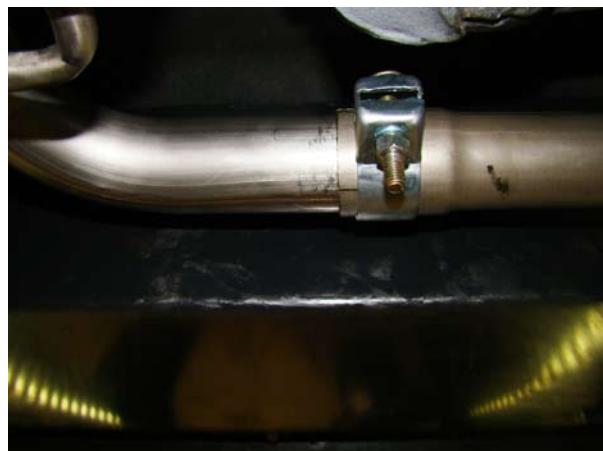
Mount the bracket by using an M8 jam nut,  
included in the kit.



Drill three holes (5 mm) through the heat shield for the blind rivets.



Fasten the heat shield with three blind rivets.



Mount the end part of the exhaust on the silencer (with an clamp) and mount the bracket on the end part by using an M8 jam nut, included in the kit.



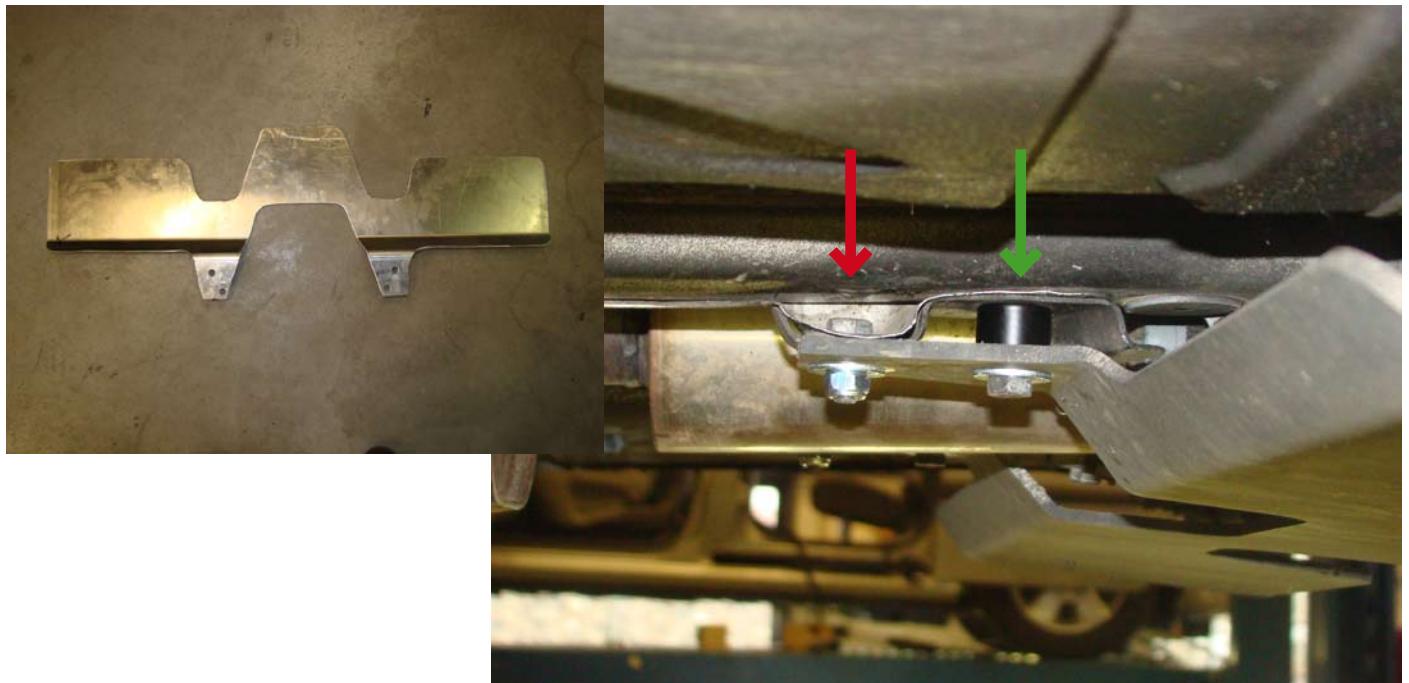
**Bierman**

## 6.3 Fuel tank protection plate

**Important:** When mounting the fuel tank protection plate make sure you put loctite on the bolts!!

Mount the protection plate using two original bolts with washers and jam nuts. Use two other bolts (M8\*40), with washers and metallic spacers (all included in the kit), to mount the protection plate (make sure you put loctite on the bolts).

**CHECK**  
**21Nm**



## 6.4 Electrical installation for 4-point belt fixation



**Important:** The green wire in the following picture's is the red wire in your set. Green is more obvious in the picture's then another red wire!!

Place the other wire (purple with switch) on top of the wheel arch.



Connect the connector plug of the earlier placed brown wire with the one of the purple wire.



**Bierman**



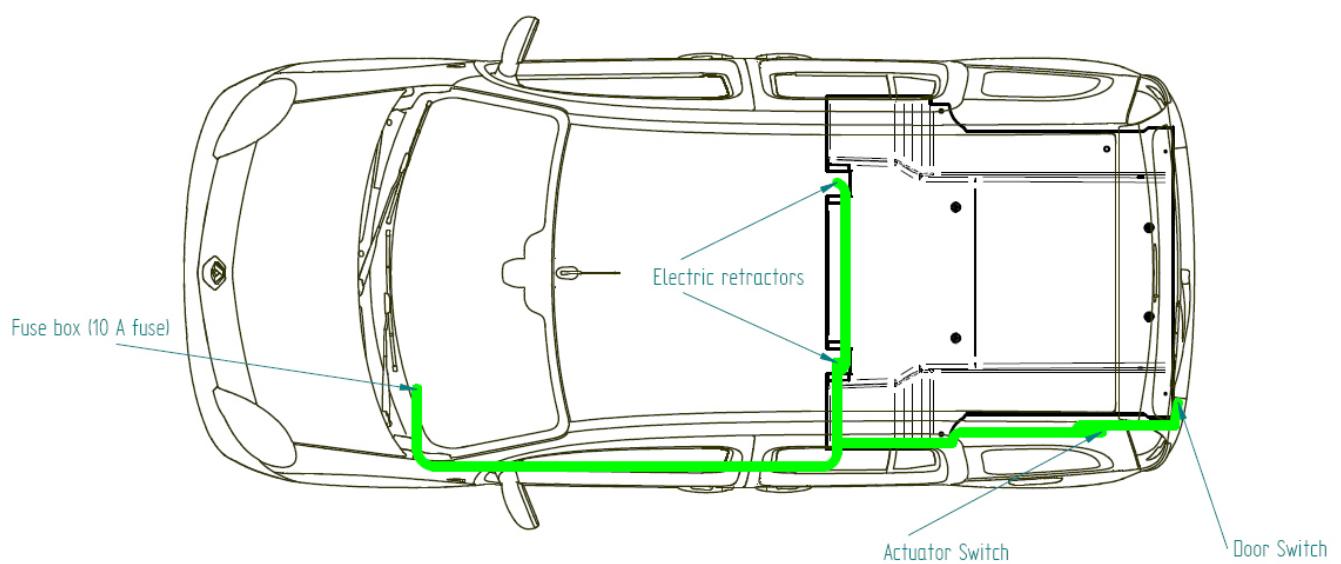
The ground switch need to come on the place that is indicated in the picture (above). Drill a hole (11 mm) where the ground is coming, treat the hole against corrosion (included in the kit). Mount the ground switch with the screw that is included in the kit.

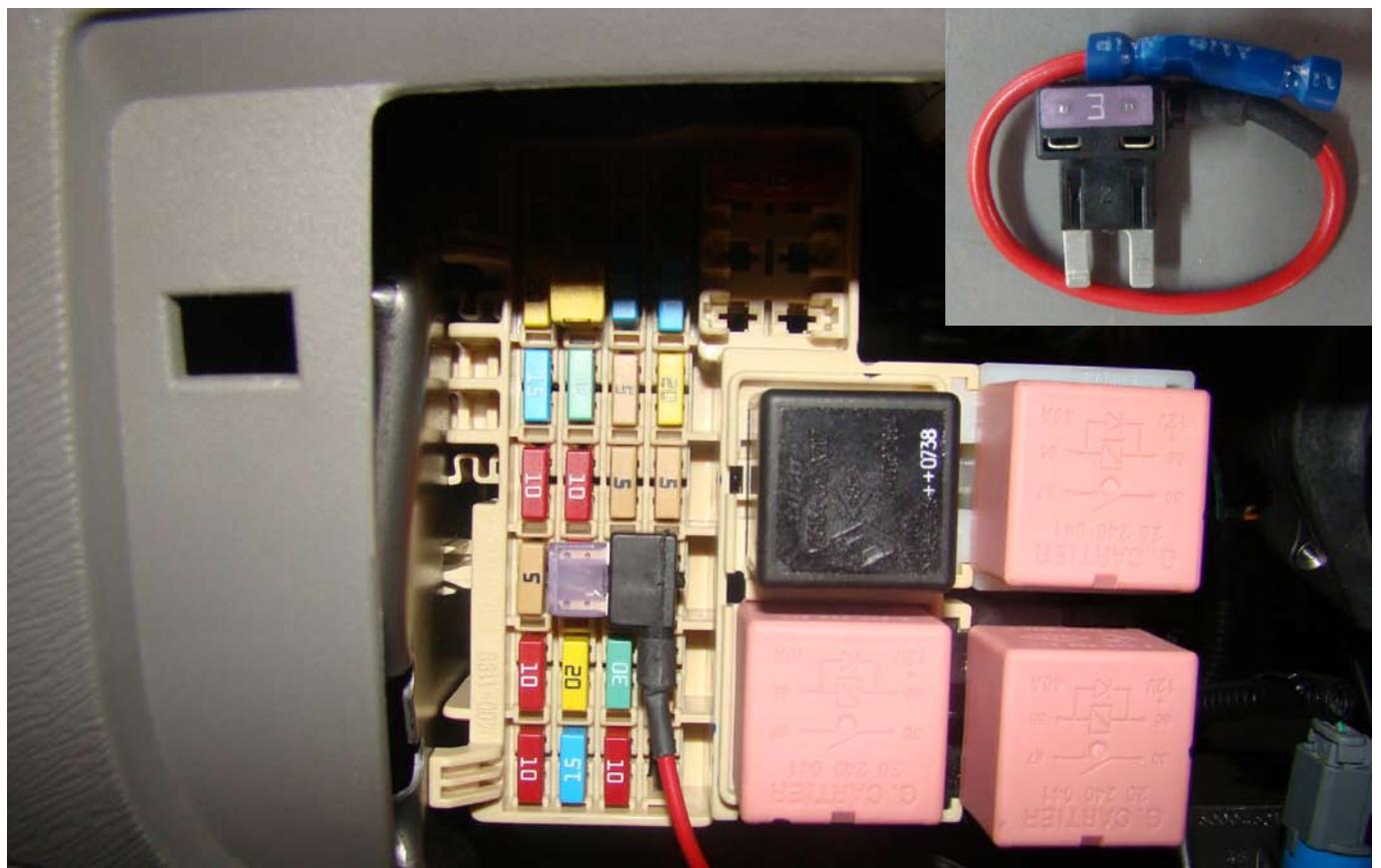




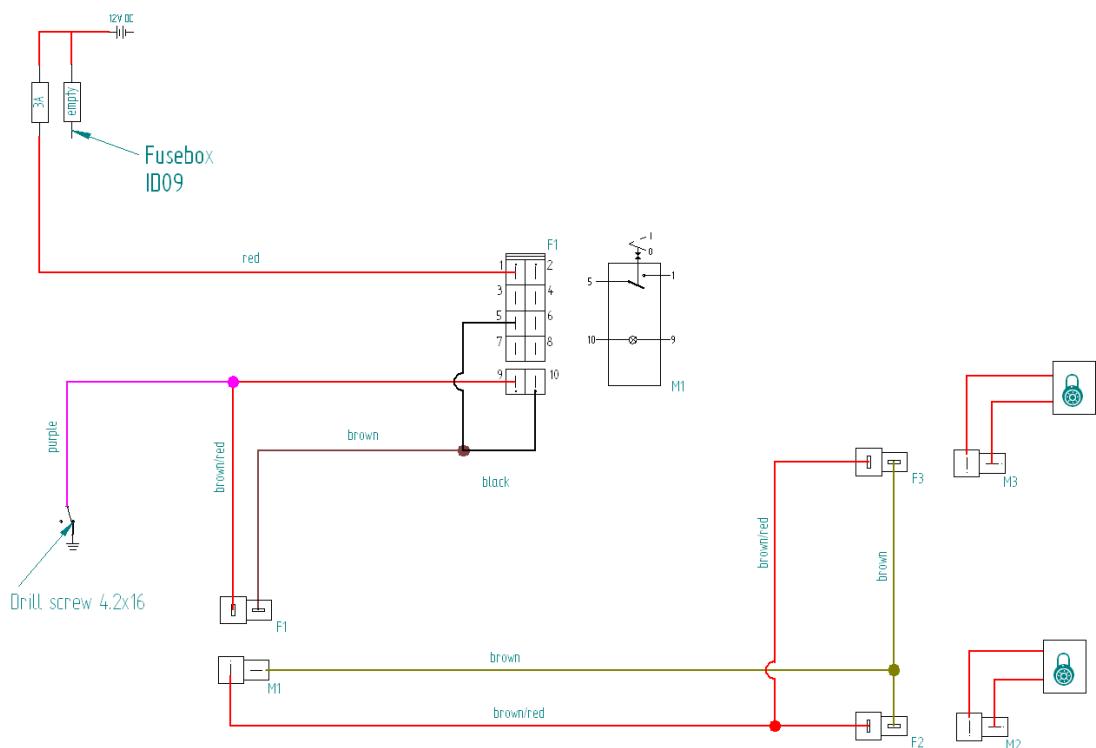
The red wire is going to the fuse box that is located inside the vehicle under the steering wheel. Attach both wires to the original cable tree.

Lead the red wire to the fuse box inside the vehicle.





Place the splitter in the fuse box in fuse ID9 (see picture).  
**If present:** you need to replace the old fuse in the splitter.

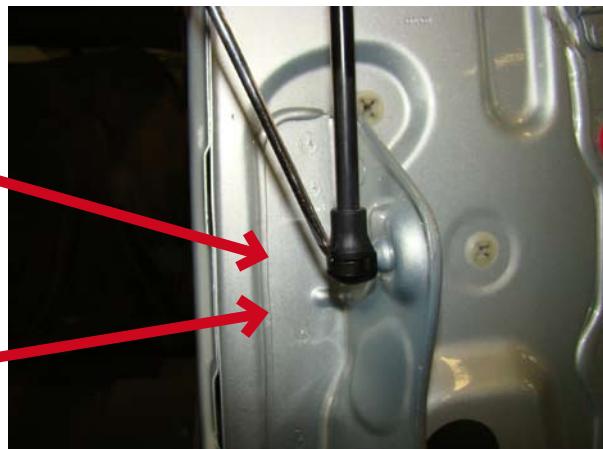


## 6.5 Mounting the rear and rear bumper

**Important:** When you need to replace the parking sensors, make sure that you place the electrical line (of these sensors) before mounting the new bumperpart!!

### Replacing the original gas spring:

Remove the safety pins, at the bottom and top, dismount the gas spring.



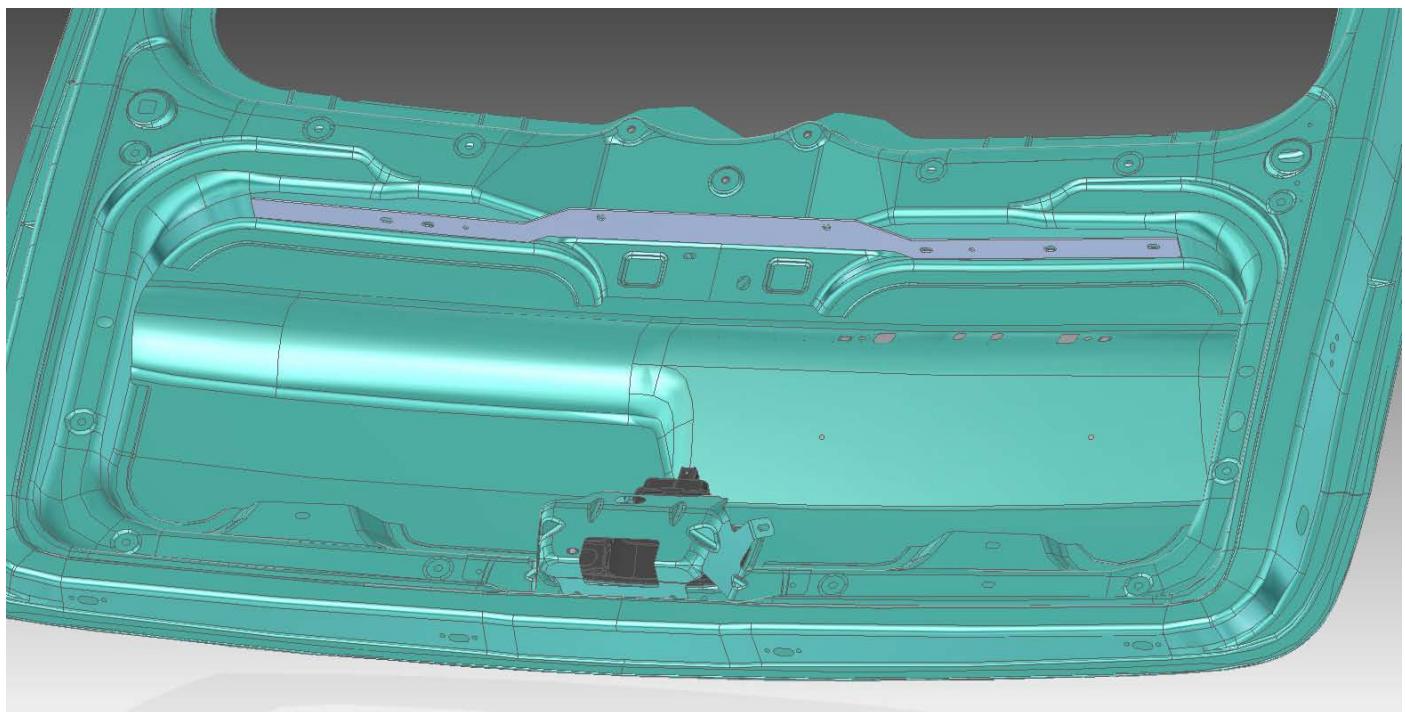
Place the rubber hose over one gas spring (included in the kit).

**Important:** Make sure that you place the gas spring with the rubber hose on the side of the ground switch (placed earlier with the electrical installation for 4-point belt fixation!!)

### Mount the new gas springs:

Place the new gas springs on the ball joints. Mount the safety pins.





Place the plate as indicated in the picture.  
Align the slotted holes and indicate  
where the holes must be drilled for the  
rivets.



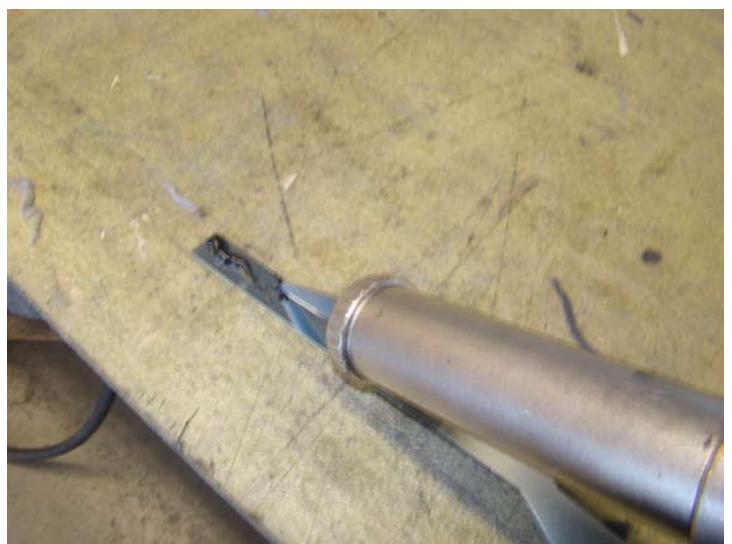
Drill two holes Ø 5 mm in the previously indicated locations.

**Preparations:**

- Clean the indicated parts with **Cleaner I**.
- Wait 5 minutes.
- Treat the parts with **Prep M** (only metal parts).
- Wait 5 minutes.

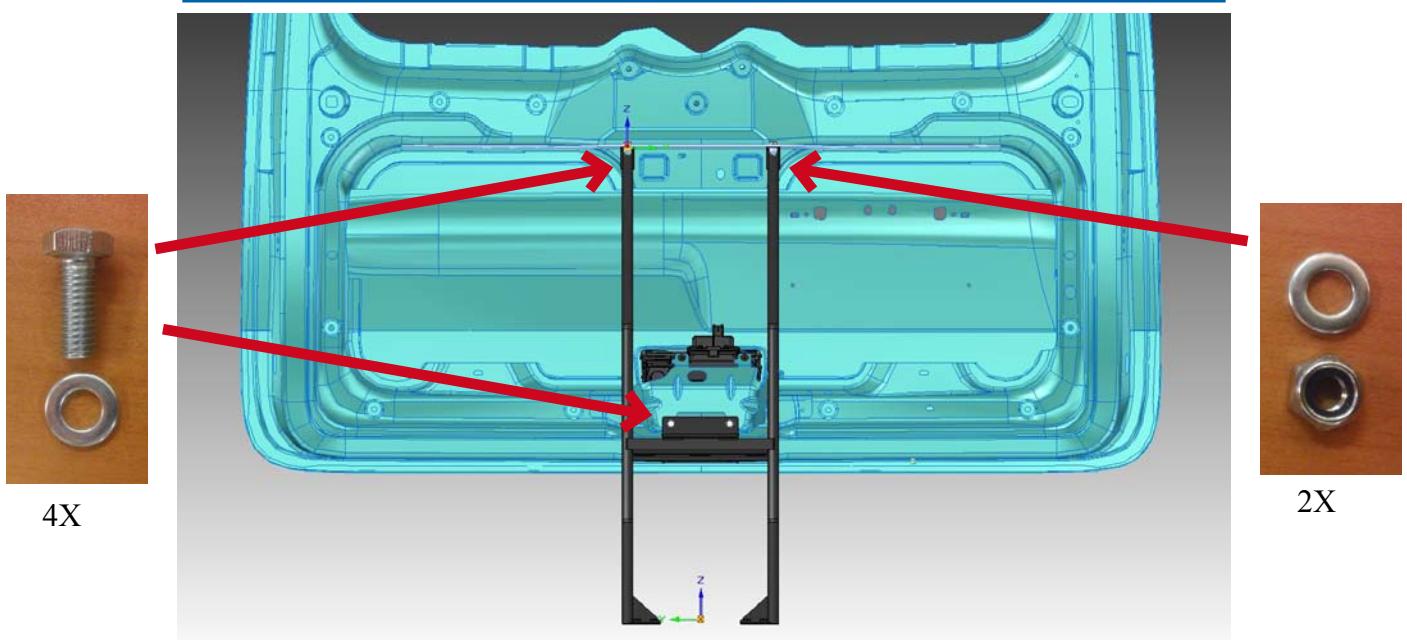


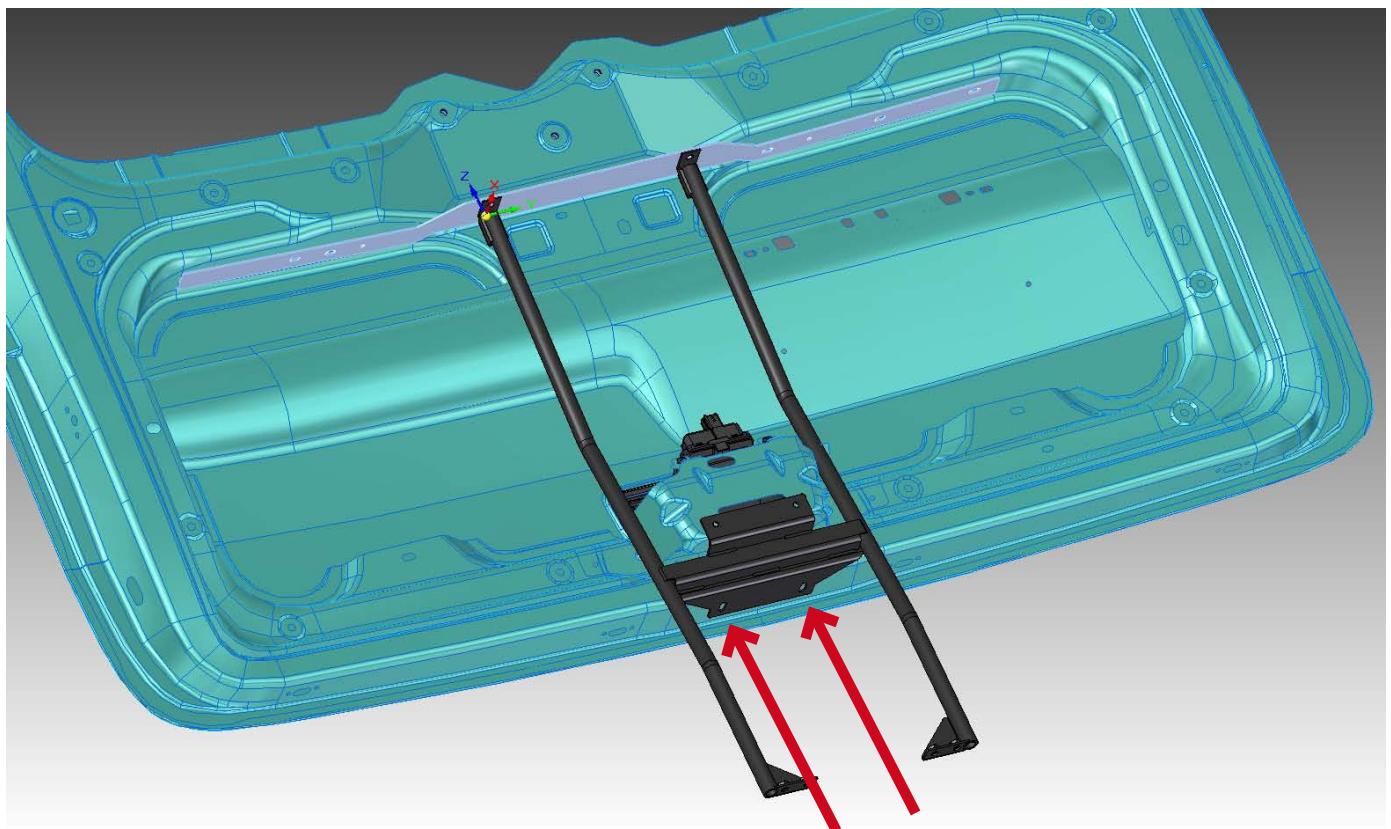
Apply the glue onto the plate and place it onto the rear hatch. Put the two rivets in the appropriate holes.





Place one of the plates behind the original lock location and hand tighten the frame onto the rear hatch using 4 bolts, 6 washers and 2 lock nuts .



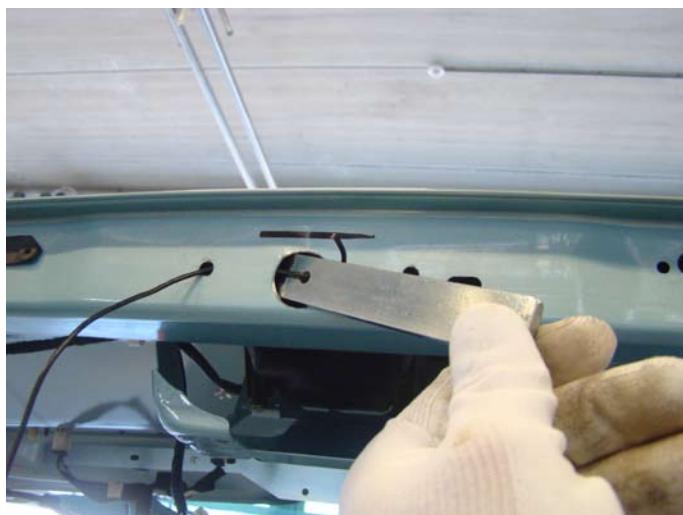


Place the frame onto the rear hatch and drill two holes  $\varnothing$  7 mm in the indicated location.



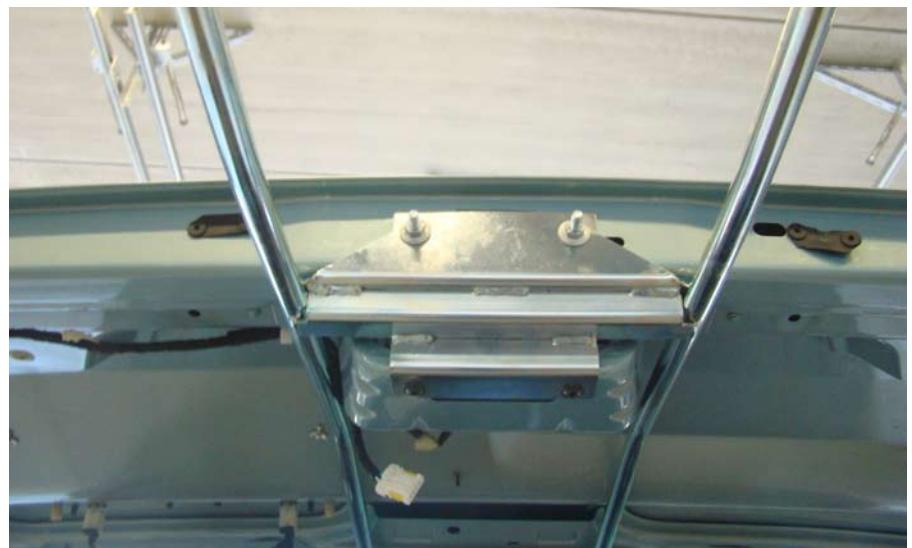
Remove the frame and drill a large hole as indicated in the picture.



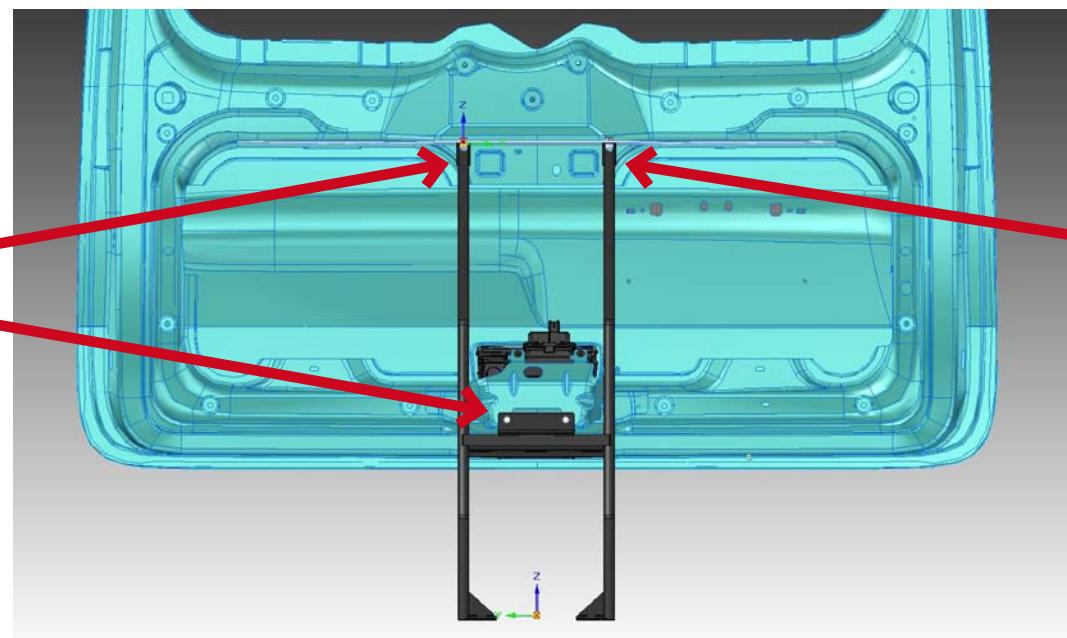


Manouver the back plate into the rear hatch and place two threads M6x35

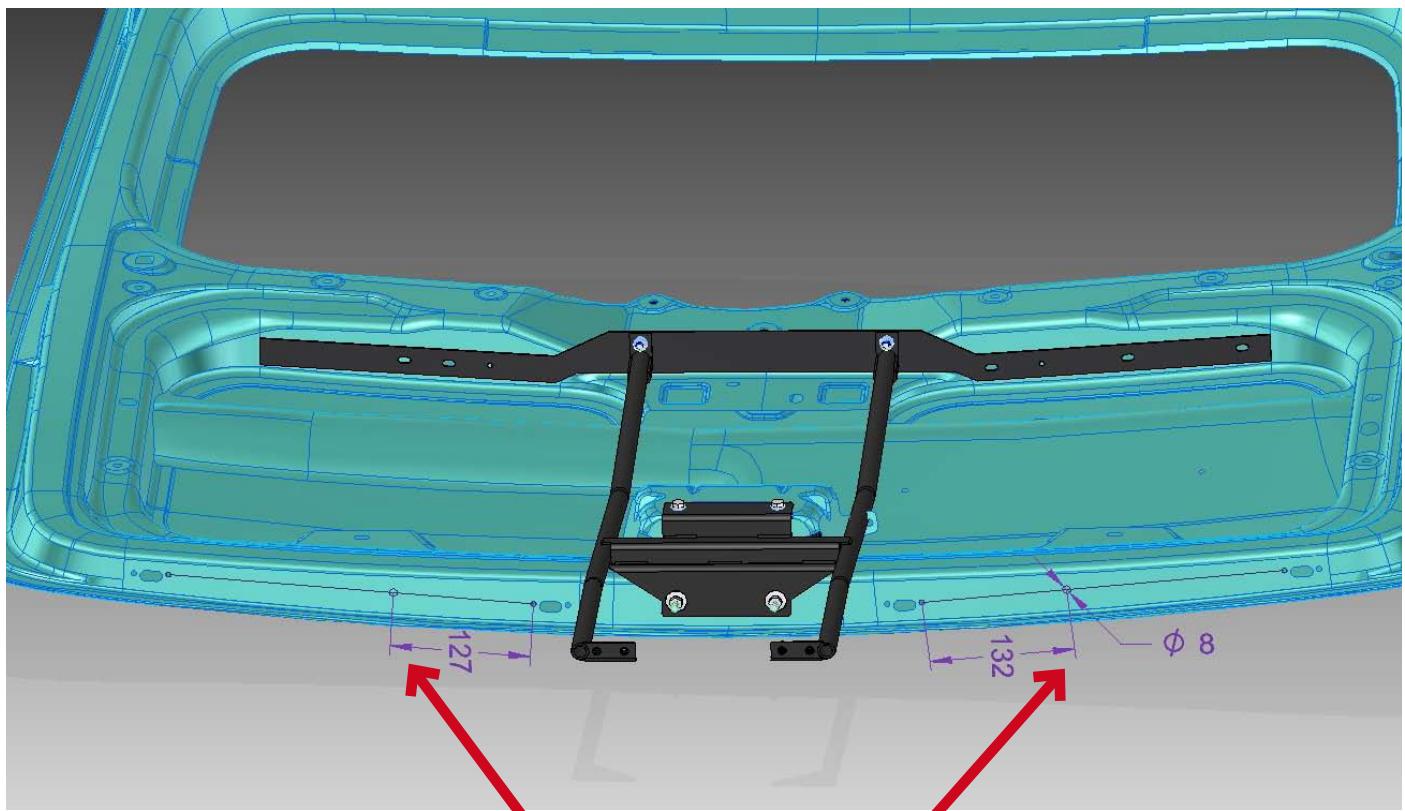
Place back the frame wth the nuts and bolts and place two nuts with washer onto the thread M6x35.



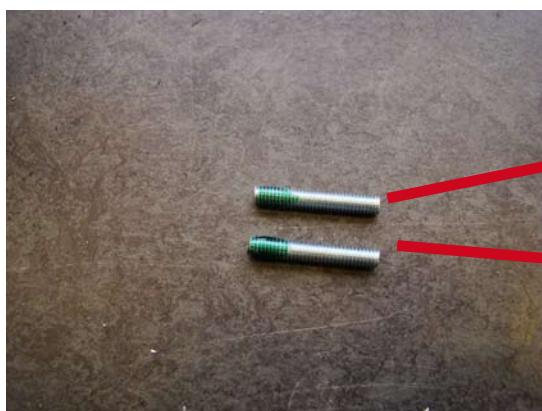
4X



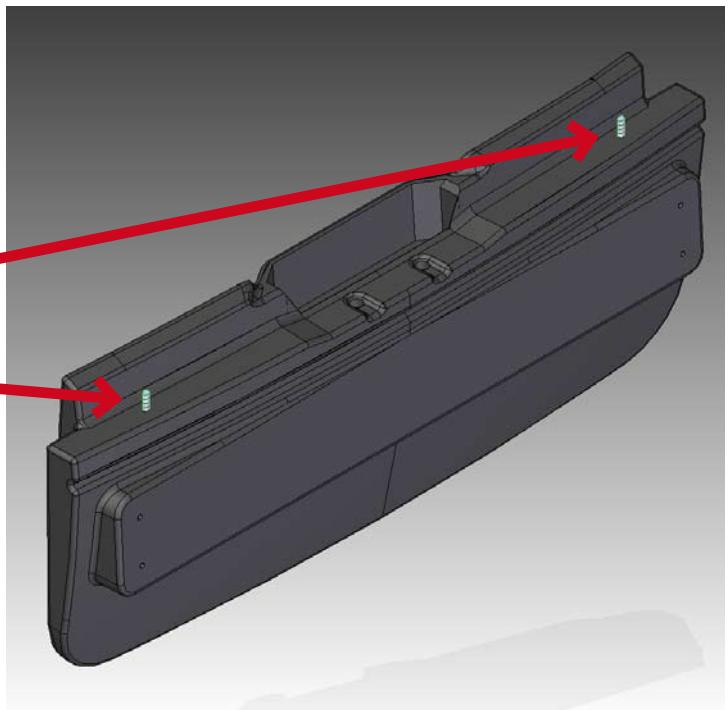
2X



Drill two holes Ø8 mm in the indicated locations.



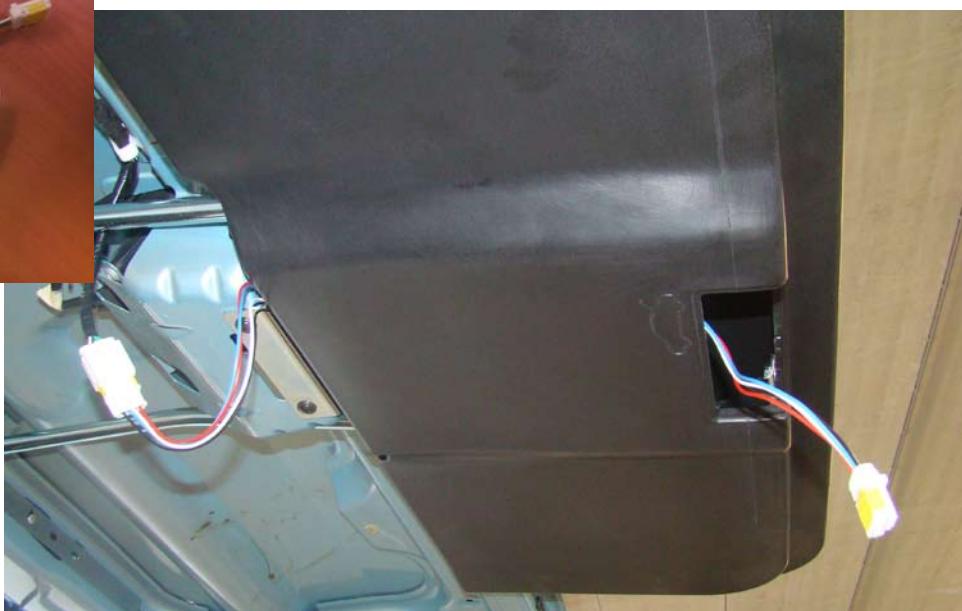
Put locktite on the threads M8x35 and place the treads left and right in the indicated places on the bumperpart.



**Bierman**

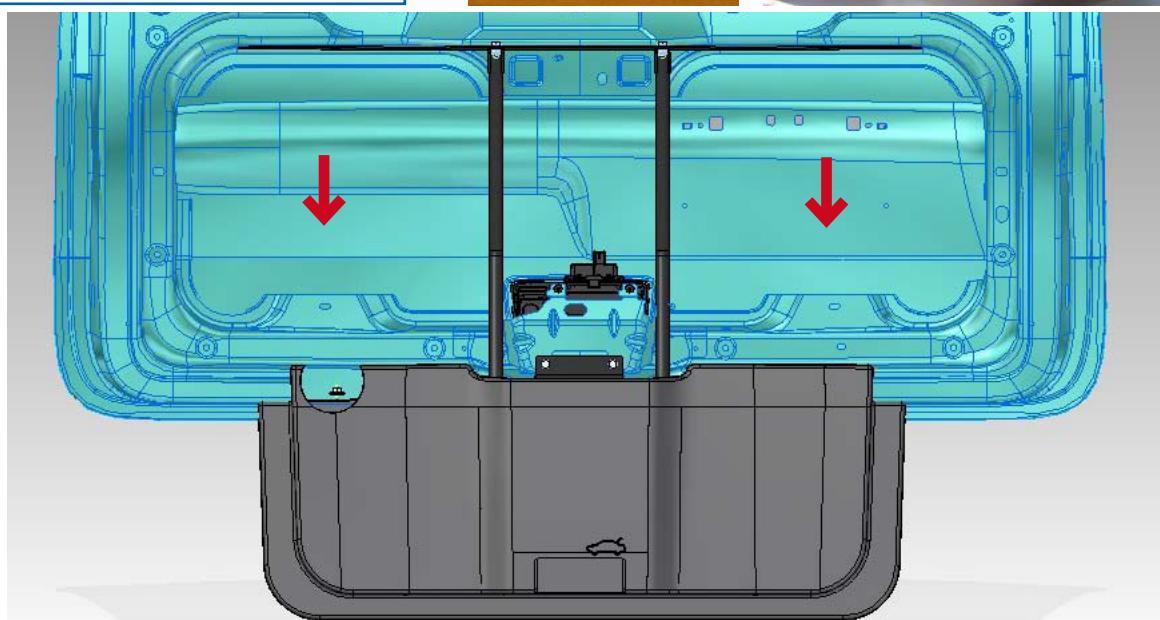


Place the electric wire onto the original Renault lock cable and place the bumper piece over the frame.

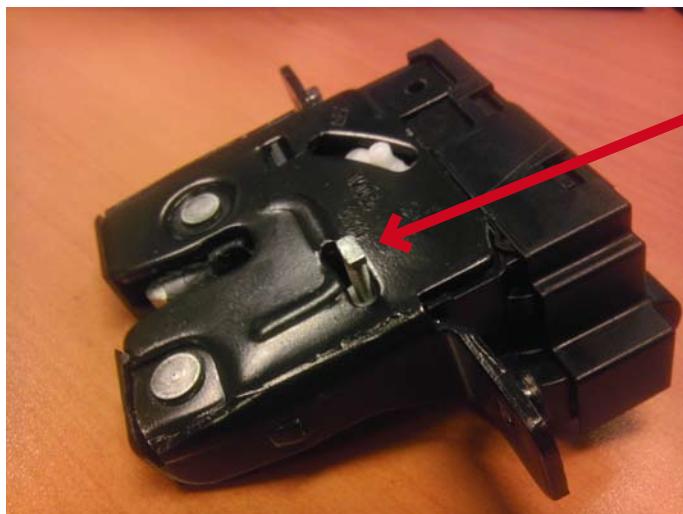
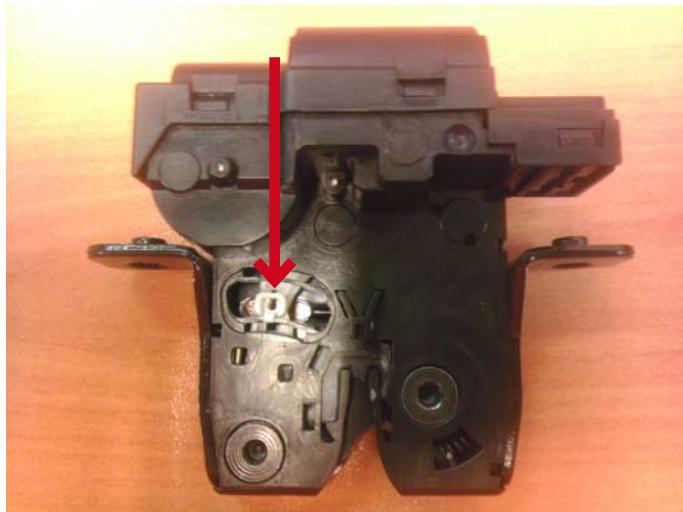


If there are parkingsensors present in the rear bumper, place the wire trough the bumperpart before placing,

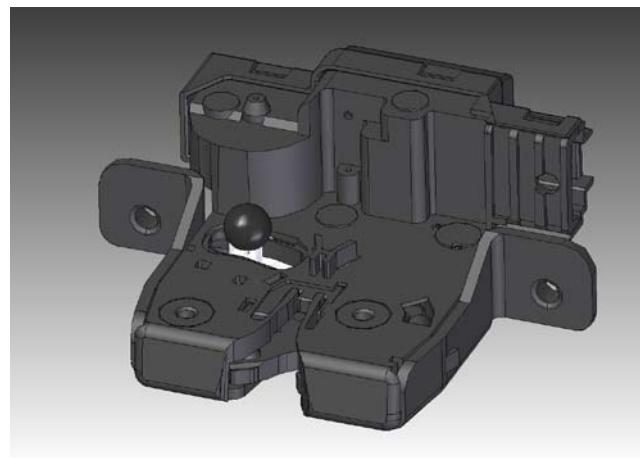
Place two nuts with washer into the rear hatch and bolt them on the thread of the bumperpart.



Drill a hole Ø3mm in the original Renault lock through the white pin.



Place the special M3x16 bolt in the drilled hole and screw the ball knob onto the top of the lock.

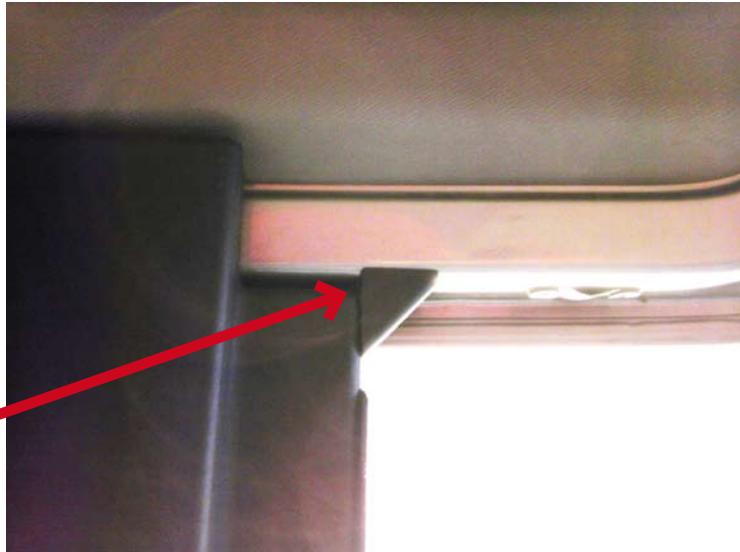
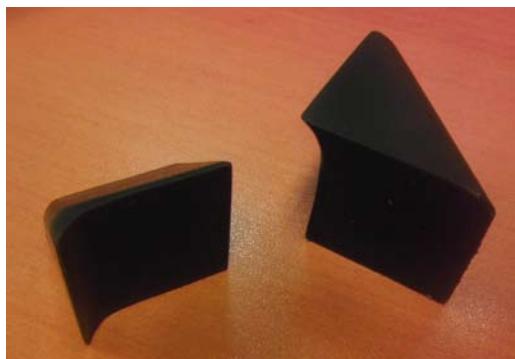
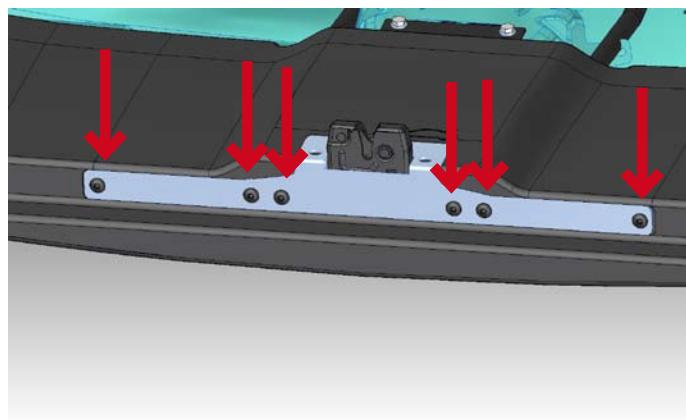
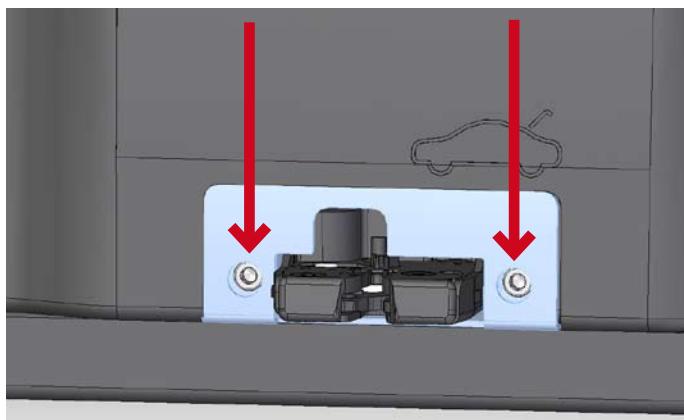


Connect the cable to the lock and manouver the subframe over the lock and onto the frame.



Bolt the lock onto the subframe using two M6x16 inner hex DIN912 bolts. Place the lock as high as possible in the subframe.

Bolt the subframe onto the frame using six black M6x12 inner hex bolts.

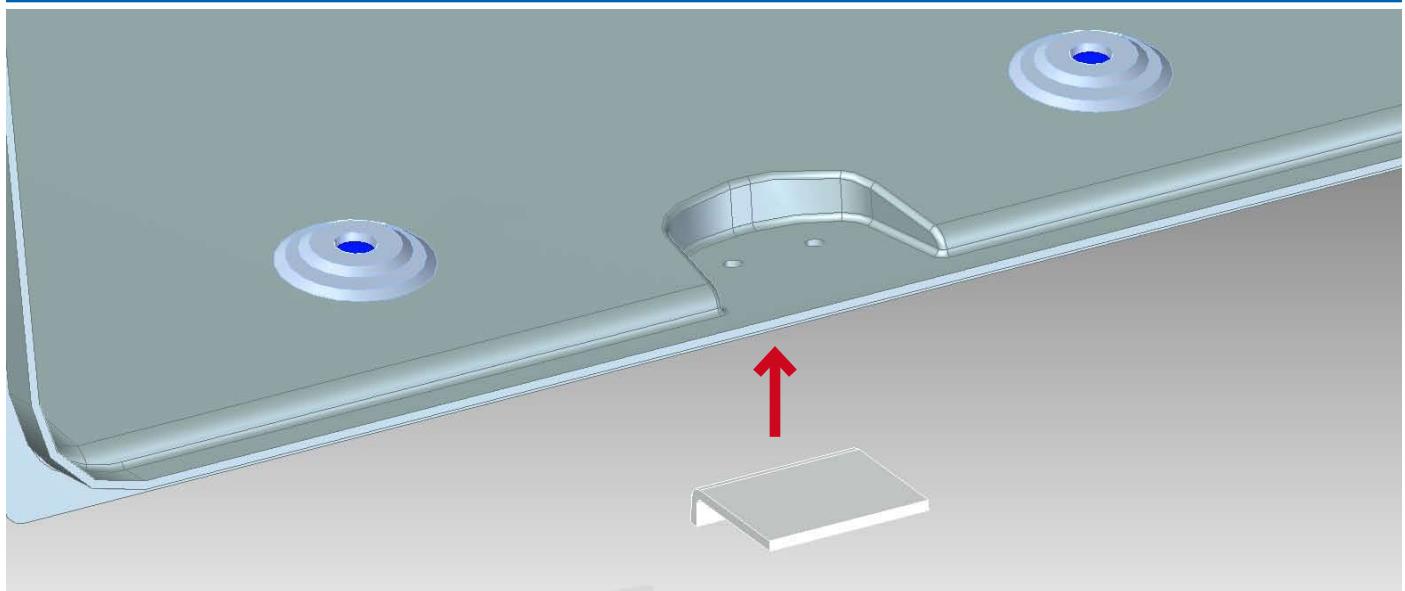


Glue the two rubber pieces on the rear hatch using the same glue as used for bonding the lowered floor.

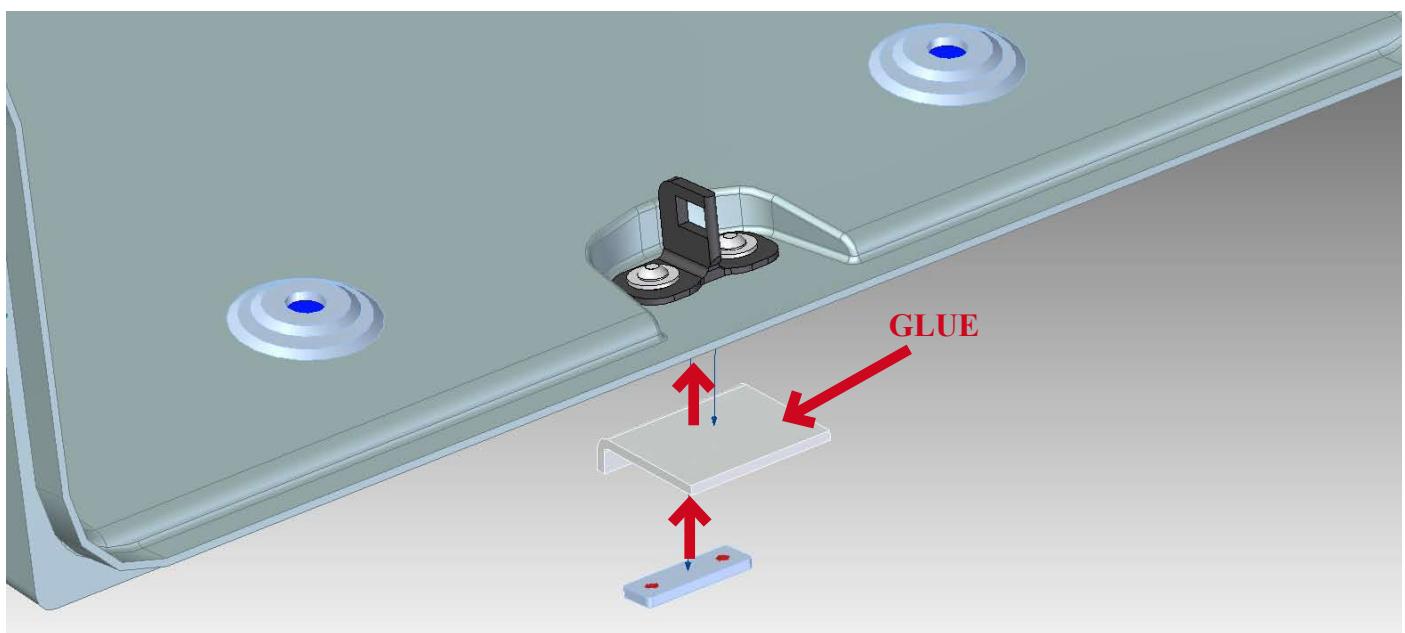
Place the catch in the hatch lock and indicate where the catch is situated on the lowered floor. Drill two holes Ø 9 mm for the lock and the back plate.



Place the catch in the hatch lock and indicate where the catch is situated on the lowered floor. Drill two holes Ø 9 mm for the lock and the back plate.



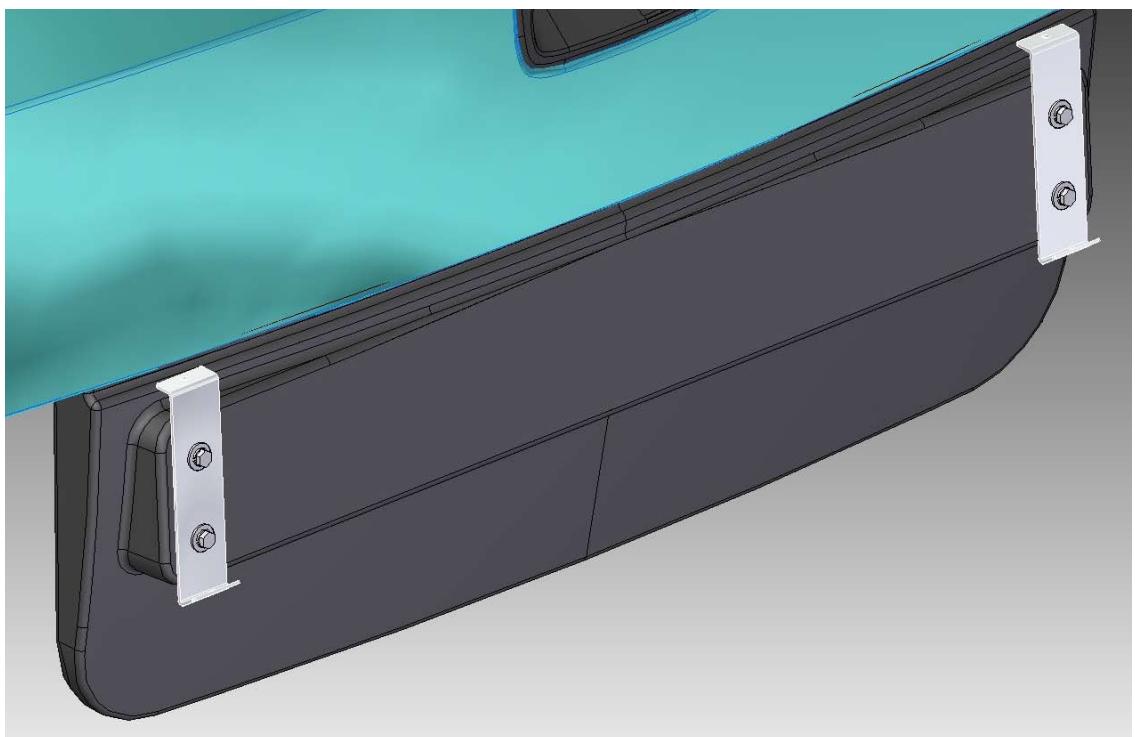
Hold the aluminium backplate under the lowered floor against the beam and draw the hole locations. Drill two holes Ø9 and glue the plate under the lowered floor.



## Version 2.1

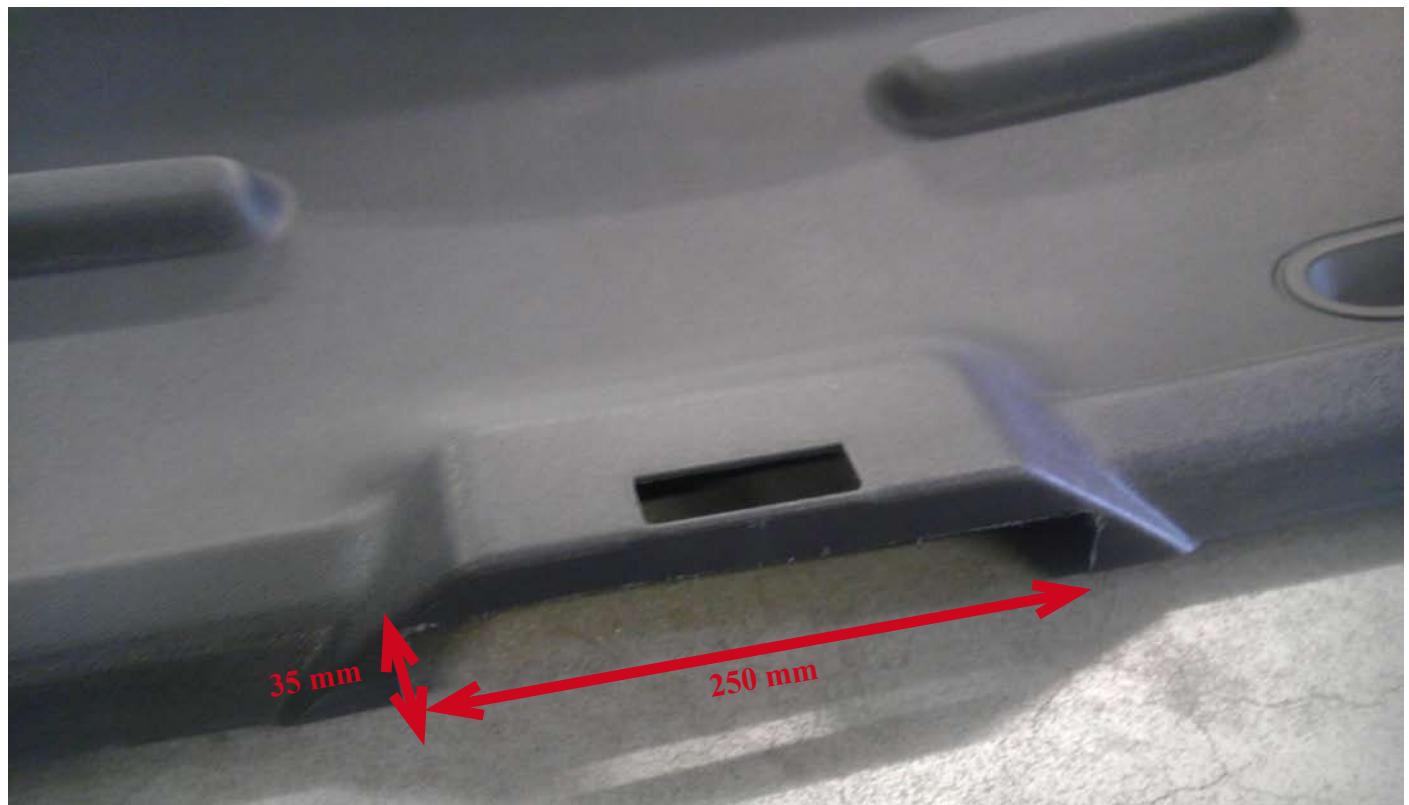
## Renault Kangoo Family / Mercedes-Benz Citan

Place the two aluminium brackets on the bumperpart as indicated in the picture using four M6 bolts, four DIN9021 washers and four spring washers.

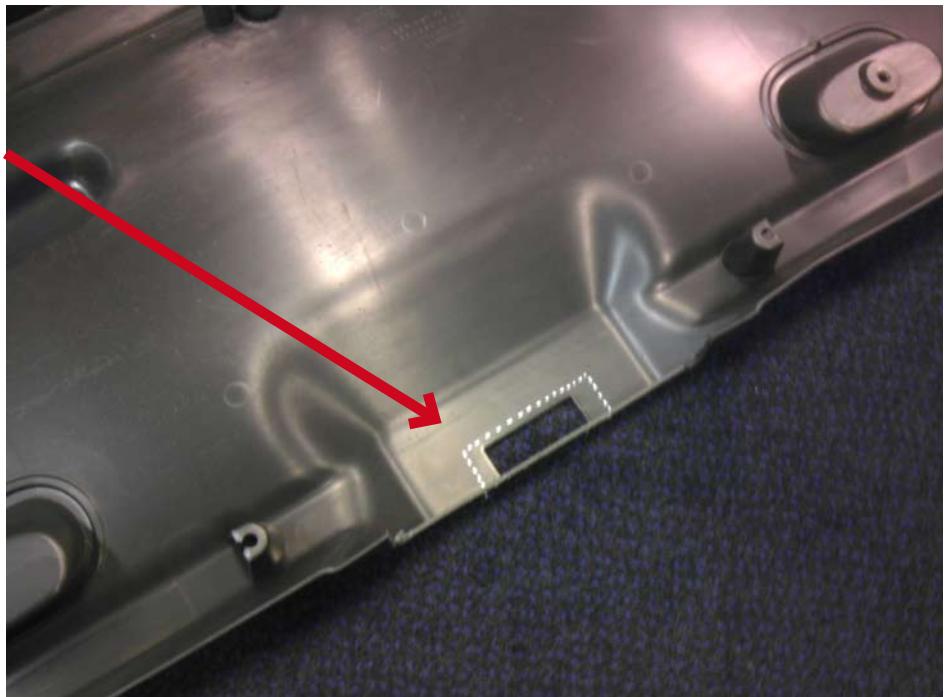


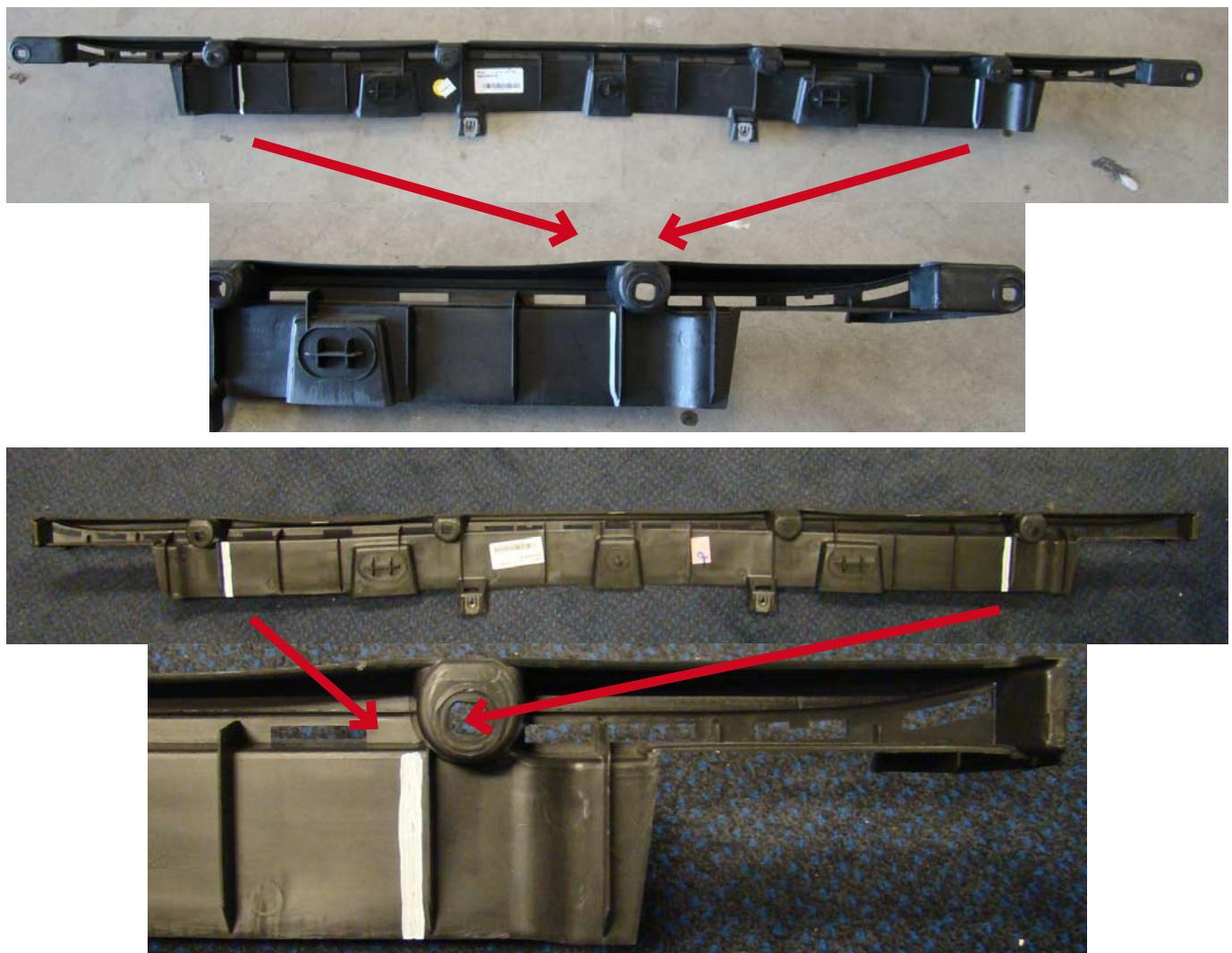
If there are parkingsensors present in the rear bumper, drill a hole in the flat part and manouver the wire through.

Cut a piece out of the original hatch cover as indicated below.



Glue a piece of the cut out part on the back of the cover where the lock used to be.



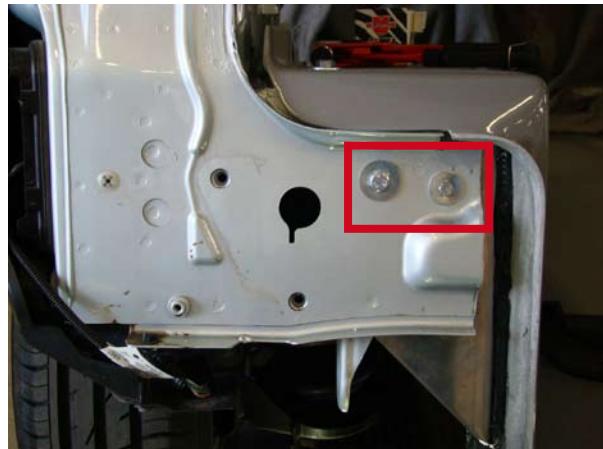


Mark the sawing lines as indicated in the picture above and saw through the bumperpart. **There are different versions of this bumperpart!!**



Now mark the sawing lines on the steel bumper by using the earlier sawn bumperpart. And saw through the steel bumper. Remove the sawing dust and treat the edges against corrosion.





Unscrew both bolts of the tie plates at each side and place the two parts of the steel bumper on the car by using the earlier used and original bolts. Now you can mount the plastic parts on the steel parts.



Original bolts



Bolt M8\*30 and nut with washer



Bolt M6\*30 and nut with washer

**21Nm**

CHECK

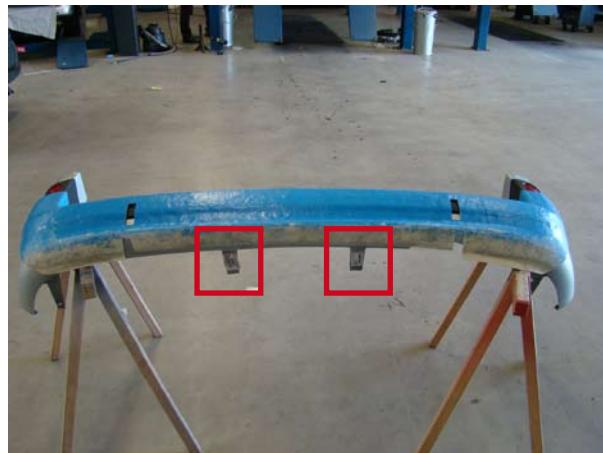
**8Nm**

CHECK



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**Important:** Before placing the mould make sure that bumper and mould are clean. No dust, dirt or sand!



Place the bumper mould on the bumper and mark the sawing lines (both sides and only the top). Saw through the bumper according to the sawing lines at the bottom you only have to remove the parts indicated in the picture above (right). **!!Keep all three parts!!**



Remount the both side parts back on the car by using the original bolts.



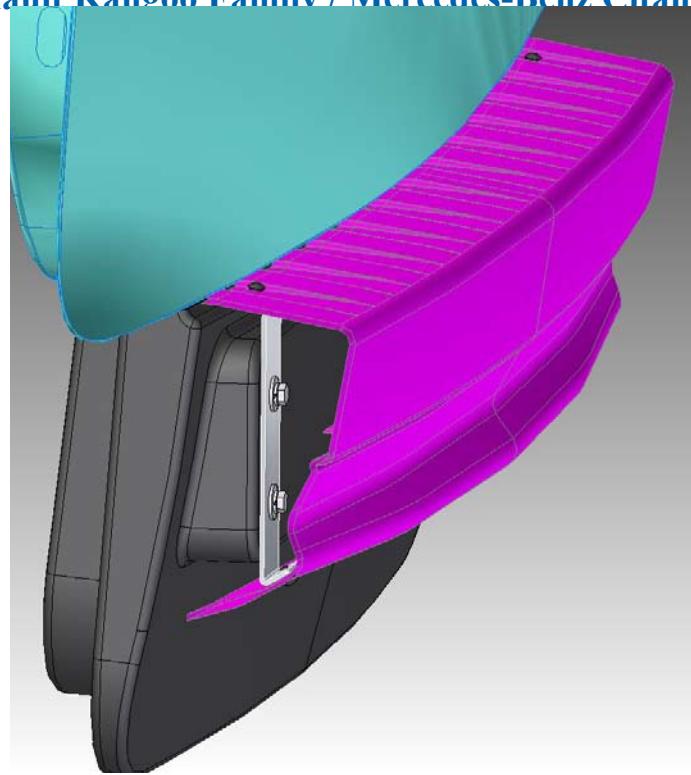
Remount both parts of the bumper (by using the original bolts) indicated in the pictures.



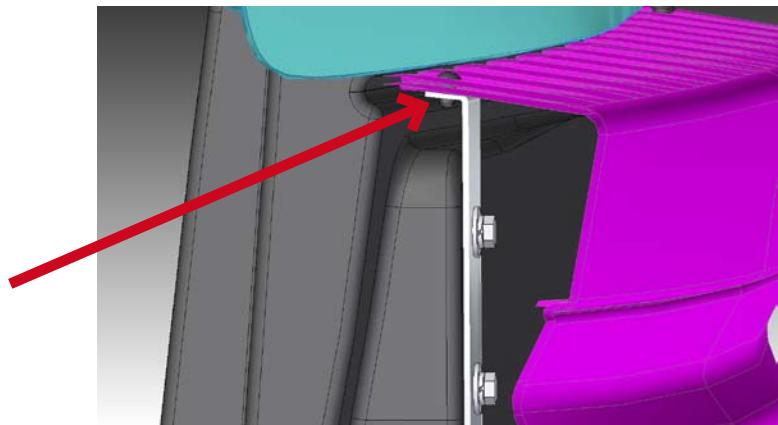
#### Remounting the tail lights (both sides):

1. Connect the connector plug.
2. Mount the tail lights by using the original bolts.

Place the bumper over the aluminium bracket and draw the hole location on the inside of the bumper. (the holes from the bumper can later be placed in the bumper mould). Drill the holes Ø 5mm in the bumper.



Fixate the bumper on the aluminium brackets using four push rivets. Because Renault uses different types of bumpers on their vehicles, a variety of push rivets is supplied.



**Important:** Use the same glue as you used for bonding the lowered floor.

If there are parkingsensors present in the rear bumper,  
connect them now and test it for proper functioning.



First glue the middle part of the bumper and the matching bumpercaps on the bumperpart. Use tape to keep them in place.



Drill a hole of 3 mm and fasten the bumper with a screw  
(4,2\*19, included in the kit)



Place the other bumpercaps over the original bumper (both sides).



Drill two holes (3 mm) on each side (top and bottom), and fasten the cap by using two screws with speed nuts (4,2\*19, all included in the kit).



## 6.6 Remounting the interior



You need to enlarge the hole (12 mm) which you see in the picture.  
Treat the hole against corrosion.



**Mounting the bracket for the three point belt:**  
Mark the hole you need to drill and drill the hole. Fasten the bracket with the bolt of the three point belt, now you can fasten the bracket with the blind rivet. Remove the bolt.





Now remount the ceiling except for the cap on the hole of the 3 point belt.



Remount the covers over the windows and fasten the top belt fixation bolts (both sides), with 37 Nm.

37Nm   CHECK

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Now remount the covers over the wheel arches. You need to remove the edge at the bottom, cut or saw this off. Fasten the covers with a screw in the bottom (included in the kit).



In the left cover you need to make a hole for the switch of the 4-point belt fixation. Mark the lines of the hole, make the hole and place the switch.  
**!!Don't forget to reconnect the connector plugs of the light and the switch!!**



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**Important:** Only if required  
by customer.



**Remounting the original belts of the back seat  
(both sides):**

Place a spacer (included in the kit) in both holes and fasten the belts with a M10\*50 (10,9, included in the kit) bolt, tighten the bolt with 62 Nm.

**62Nm** CHECK



Remount the rubber of  
both side doors.

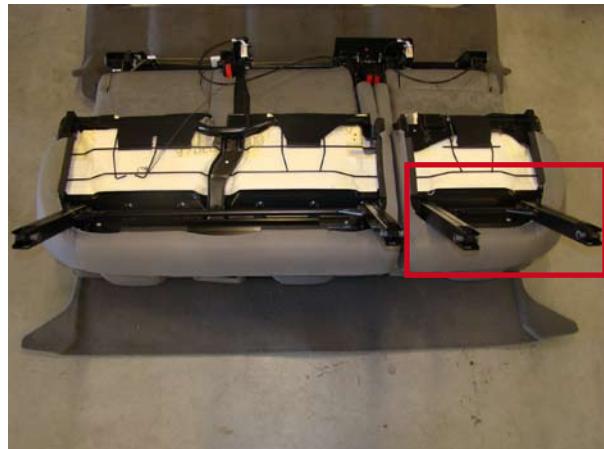
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Remount the rubber of the rear door.

Begin with the original rubber at the top so you can fill up the space at the bottom with the rubber that is included in the kit.

6.7 Mounting the 1/3 part of the backseat on the right side



Dismount the 1/3 part of the back seat.



Unscrew both bolts and keep the bolts and the spacers.

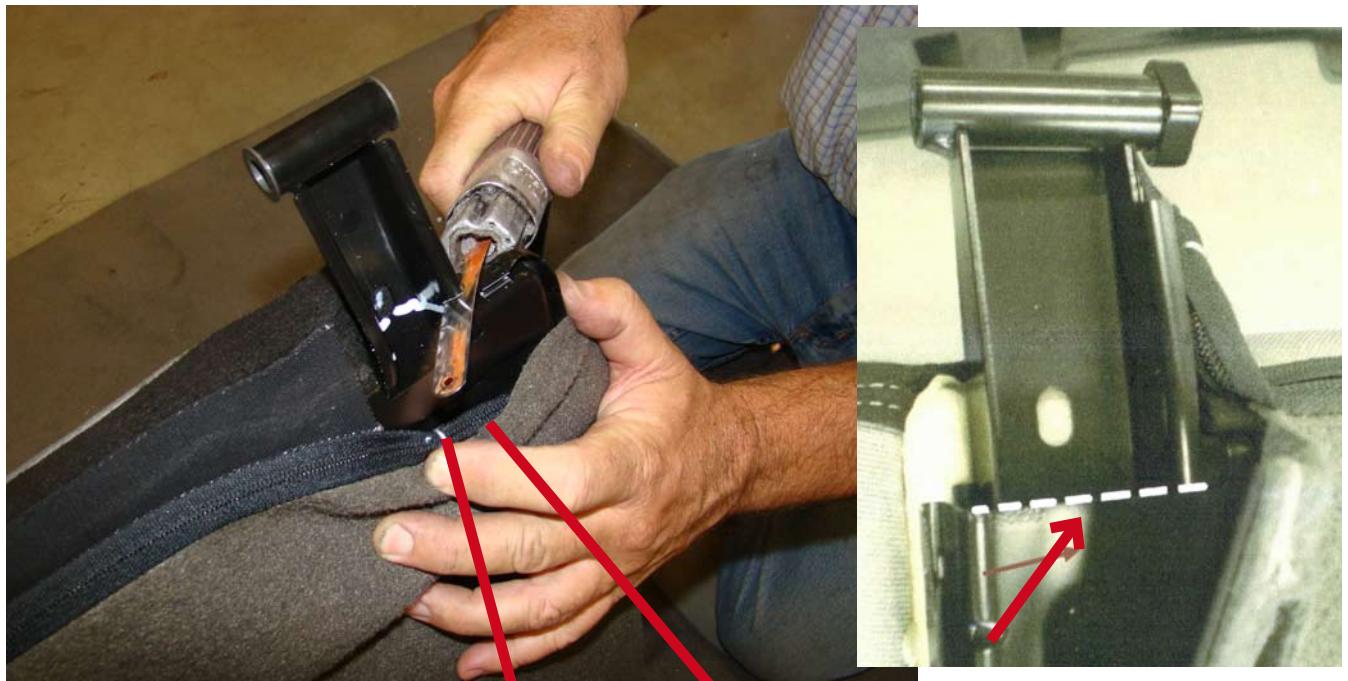


Dismount the lock mechanism. And cut it off.



**Important:** When you have ordered the optional folding chair make sure that you keep the head rest of the original back seat, this head rest is used for this chair!!

The rest of the back seat you can throw away, no need for it anymore.



**Preparing the 1/3 part:**  
Saw away both 'legs' of the 1/3 part, protect the seat and treat the edges against corrosion.





Place two caps over the openings of the back rest  
(included in the kit).



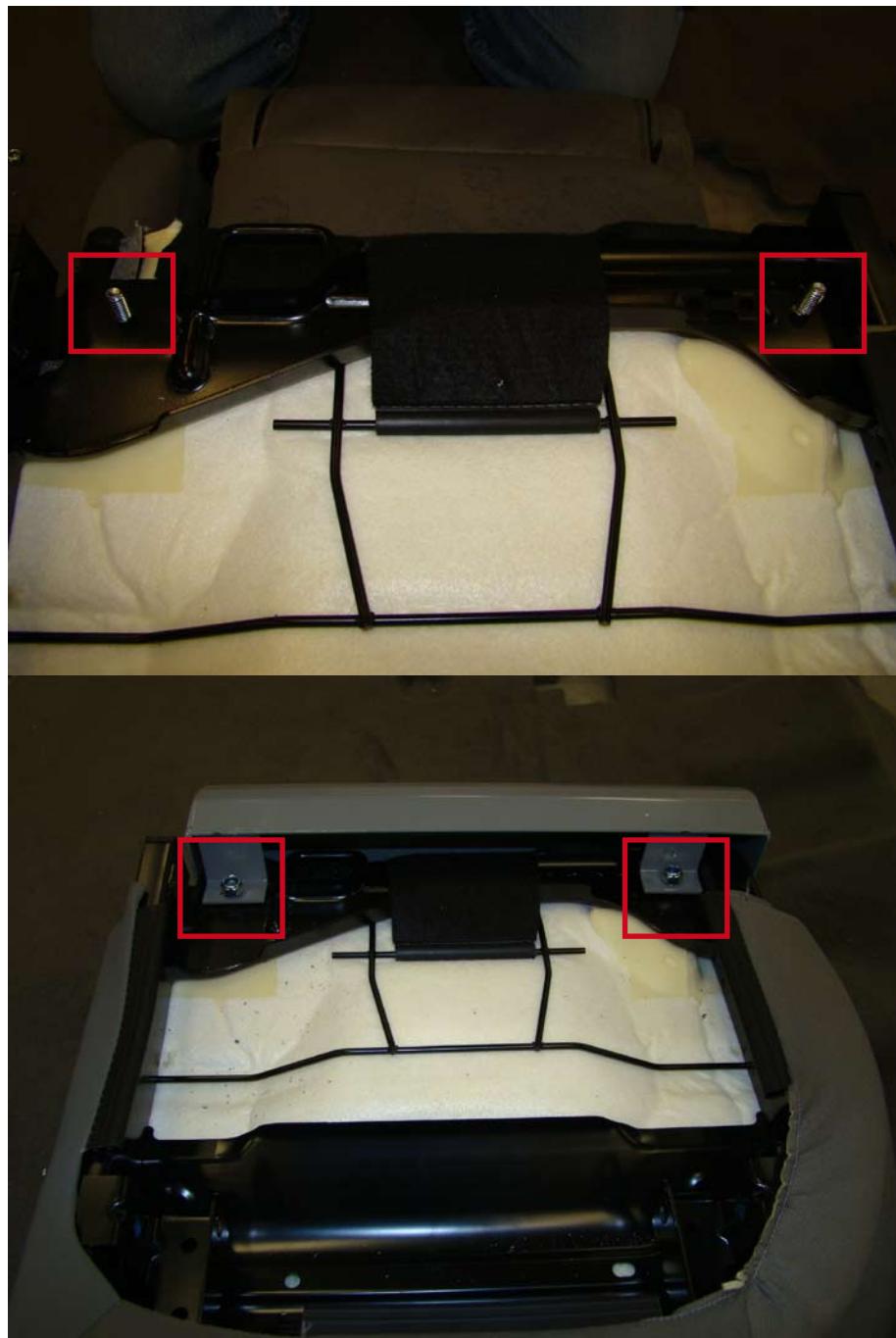
Place the two rectangular caps in  
the openings on the seat cushion  
(included in the kit).





Now mount this bracket on the 1/3 part, using two M6\*20 bolts, two M6 jam nuts and four washers (included in the kit). Tighten the bolts with 8 Nm.

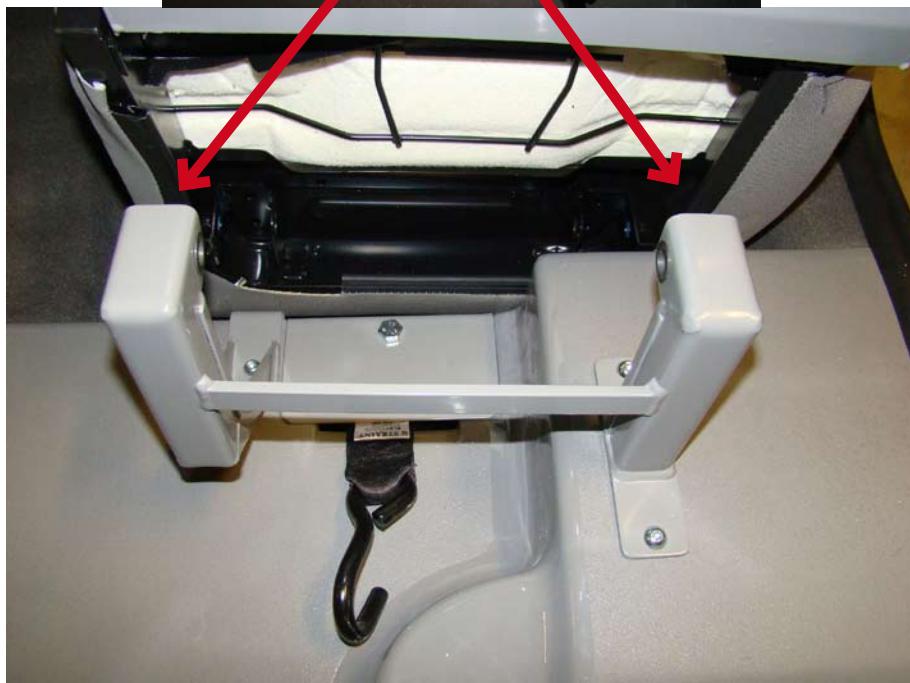
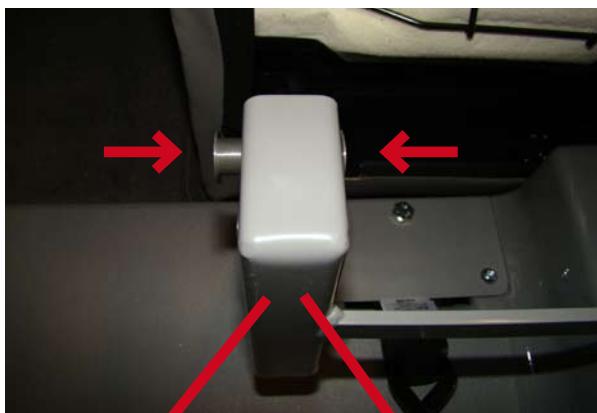
**8Nm** CHECK





**31Nm** CHECK

Place the bracket on the position that is indicated in the picture. Mark the four holes and remove the bracket. Drill the four holes and apply M8 thread in each hole. Mount the bracket on the lowered floor, using four bolts (M8\*30 10,9, included in the kit).



#### Mounting the seat:

Place two of the original spacers on each side of the bracket.



Mount the seat with the two original bolts.

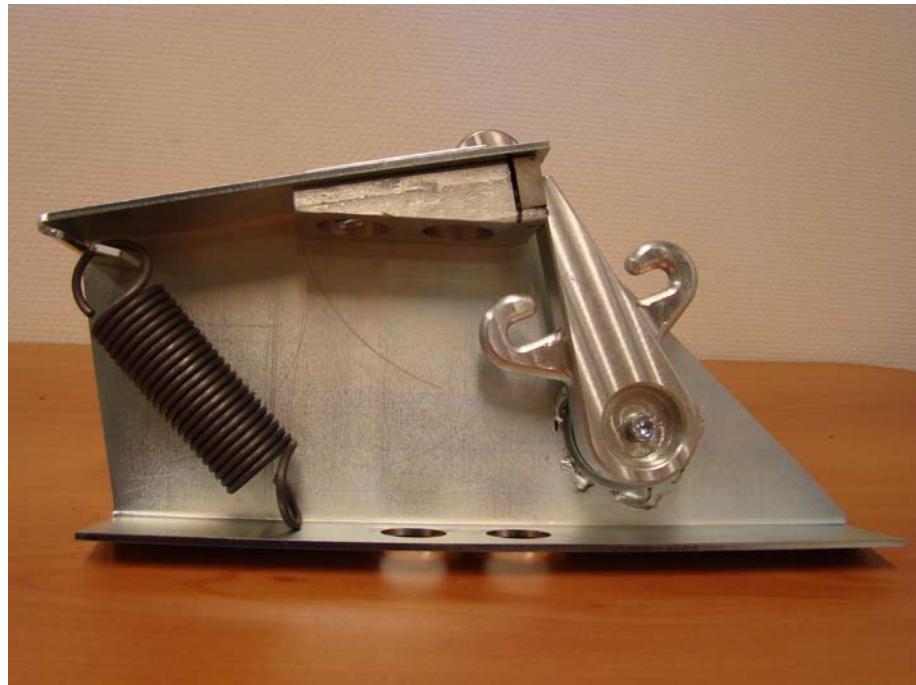


Place the seatbelt stick next to the seat.



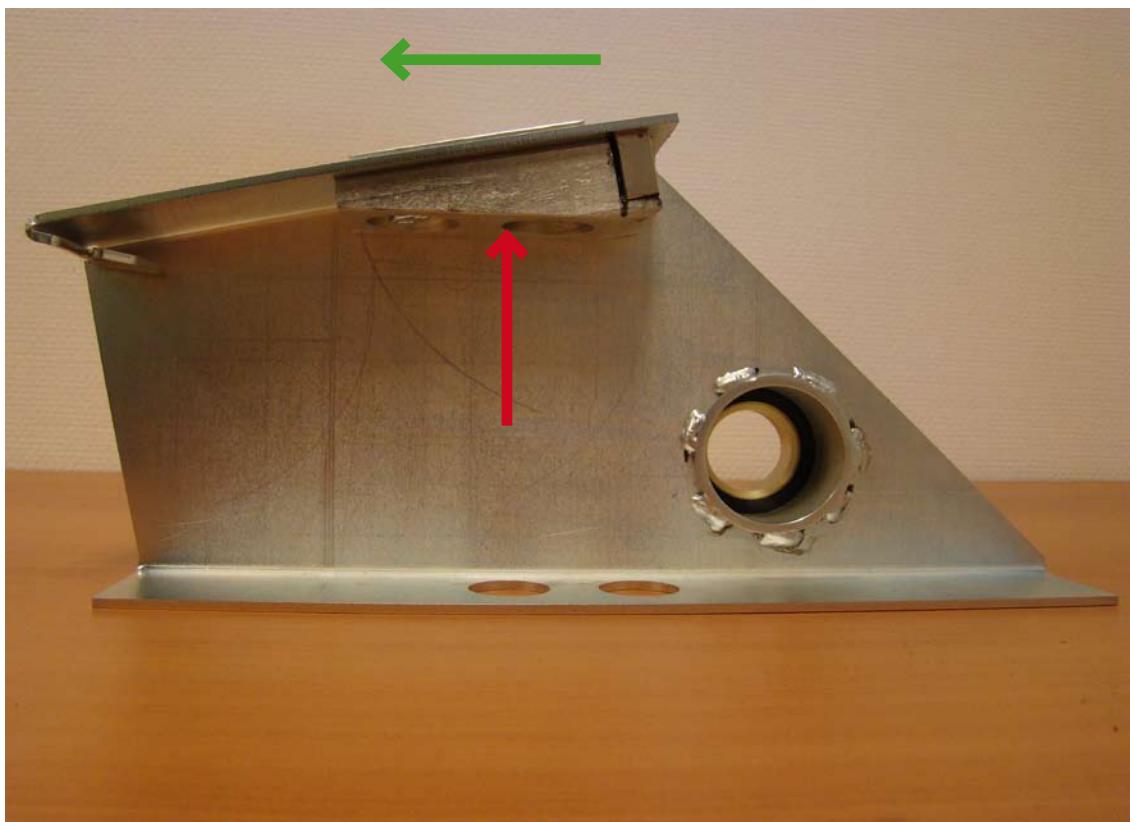
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6.8 Ramp



Remove the spring and the hinges from the assembly, as indicated in the picture below (both sides).



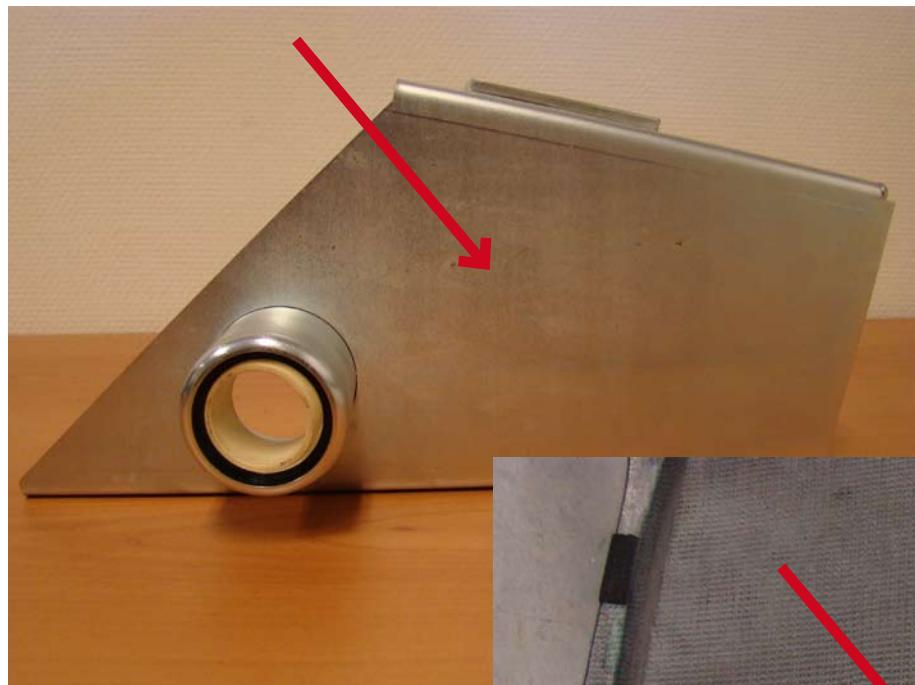


Before you glue the mounting plates onto the lowered floor you have to make sure that the **part with the magnet** is mounted as far as possible from the hole (both sides).  
You can adjust the position of this part by loosening the bolts and to shuffle the part to the correct position, indicated in the picture above.

**IMPORTANT:** Make sure that the parts which will be glued are prepared with **Cleaner I** and **Prep M**.



Clean the indicated parts with **Cleaner I**.



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Treat the indicated part with **Prep M**.

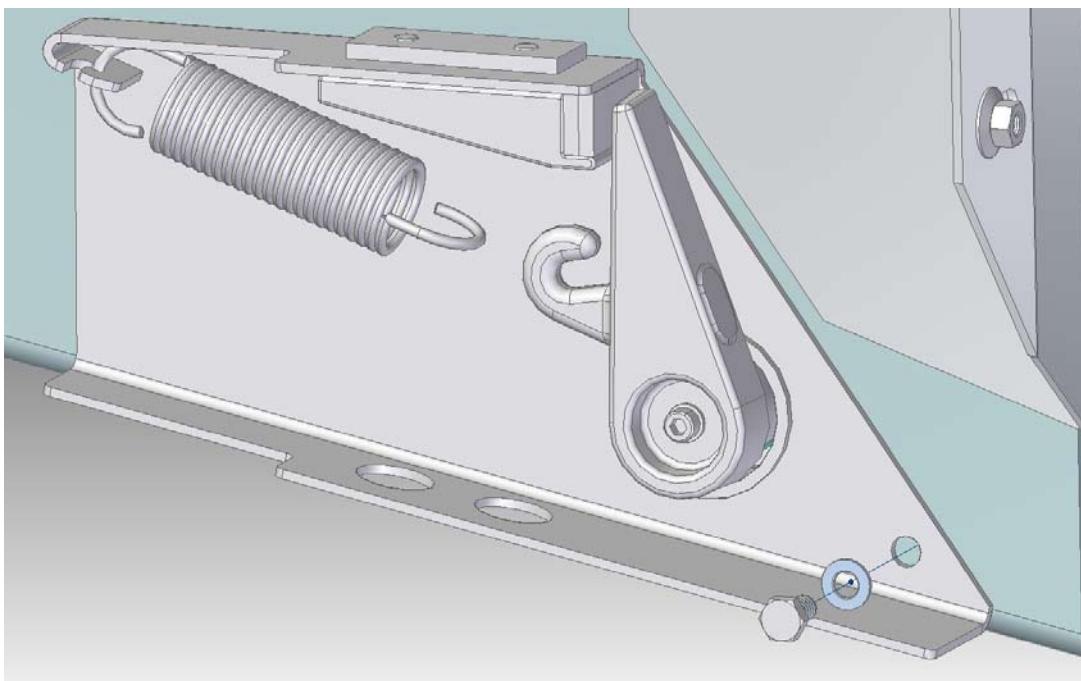


**IMPORTANT:** Make sure that you use the same glue as you have done for bonding the lowered floor into the vehicle.

**IMPORTANT:** After bonding the mounting plates onto the sides of the lowered floor you must wait 48 hours before using the ramp. This way, you will get the maximum strength of the glue!!



Apply the glue onto the mounting plate and place it on the lowered floor as indicated in the picture above. Bolt the plate onto the floor as indicated below.

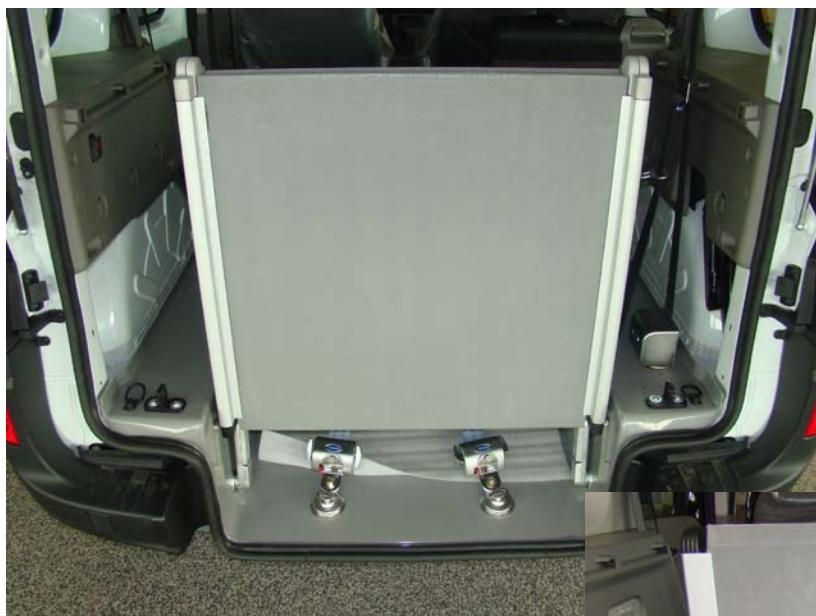




**IMPORTANT:** When you are converting a car with air suspension you have to mount the plate indicated in the left picture on the right side (the side where the compressor is mounted).



When the mounting plates are fastened you can remount the hinges and the spring, as indicated in the pictures above (both sides).



The double folding ramp is for the basic-version.



The single ramp is for the comfort- and air-version.



Mount the ramp onto the hinges, which are already installed, by using two bolts (both sides).



Now the ramp is installed you can adjust the position (in the vehicle) of it.

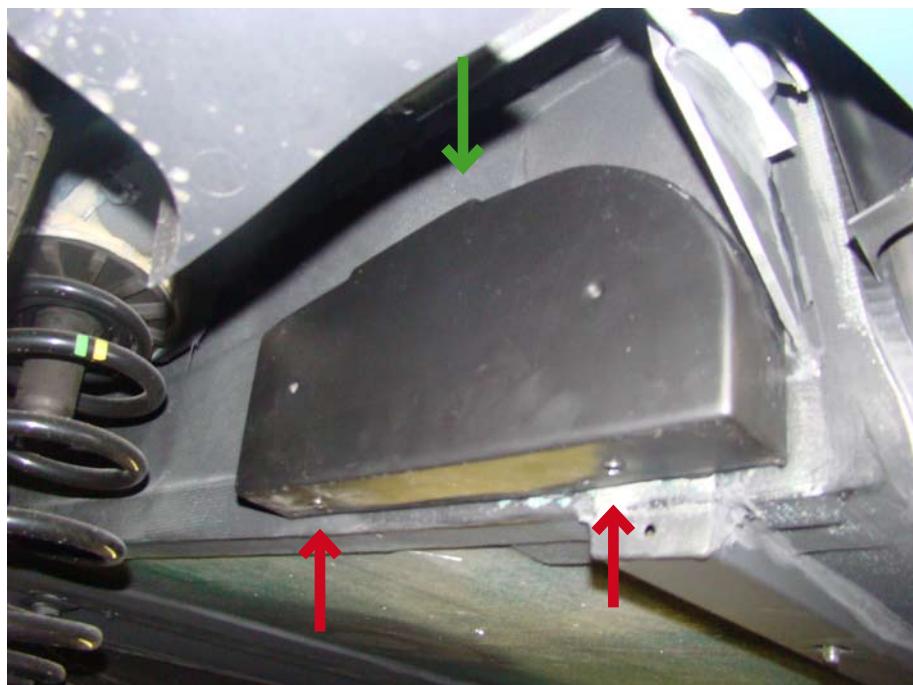
Just loosen the indicated bolts on the mounting plates (both sides) and position the part with the magnet in the position you prefer.

When the ramp is in the correct position you have to fasten the bolts again (both sides).



Basic- and Comfort-version

Air-version



Mount the protection covers by using **double sided tape** on the inner top side and **two screws** at the bottom.



The protection cover for the right side of an air-version is different but they are mounted in the same way as the normal protection covers.

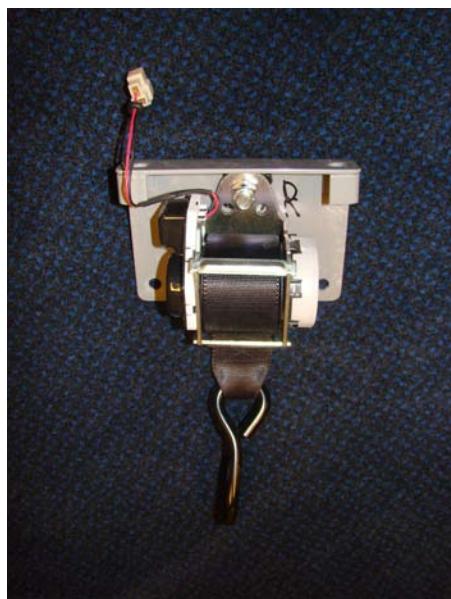
6.9 4-Point belt fixation



Dismount the plate and connect the connector plug and check if the belts are working before you remount the plate. Tighten the bolts with 31 Nm.

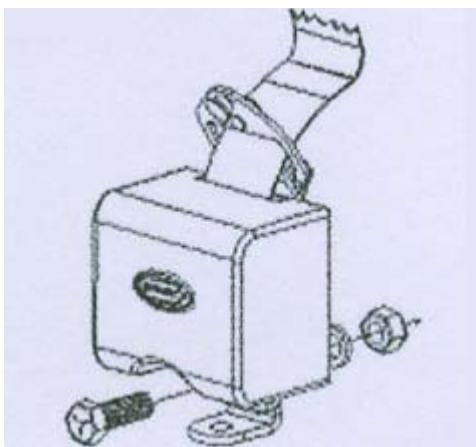
**31Nm**

CHECK





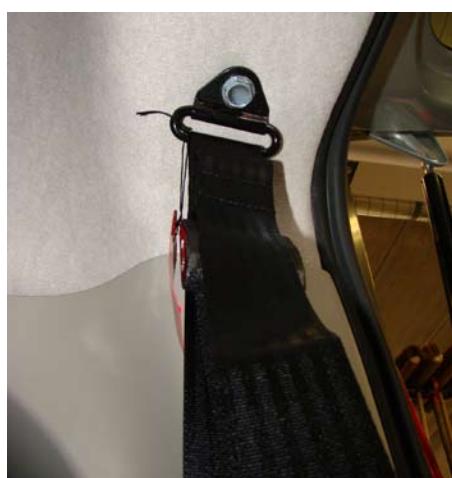
Place the rear retractors on the slide 'n' click pots.



Drill a hole into the lowered floor for the 3-point belt. Place the retractor on the lowered floor, in-line with the inner catch plate bolt.

CHECK

**98Nm**



Mount the top of the belt with the bolt and put the protection cap over it.

CHECK

**37Nm**



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Renault Kangoo Family / Mercedes-Benz Citan



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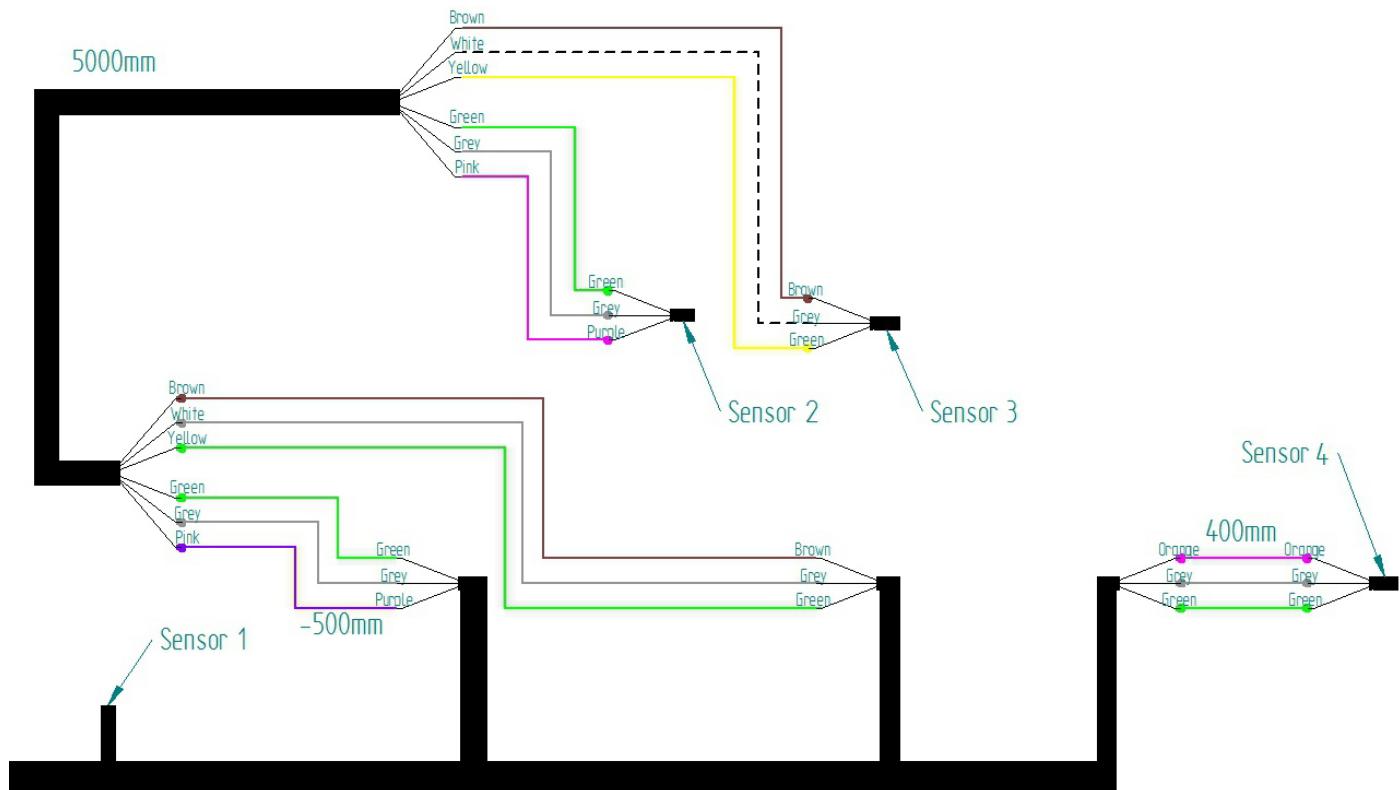
## 6.10 Connecting the moved parking sensors

3 of the 4 parking sensors cables need to be lengthened.

Cut the wires of the two middle parking sensors.

Manouvre the wire of the set through the D-style of the car into the rear hatch.

Below is an example of how the wires can be connected.



Use the provided cable connectors to connect the wires.



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## 7. Torque specifications

**IMPORTANT:**

always use a calibrated torque wrench.

Bolt type	Class 8.8	Class 10.9
M6 * 1.00	8.5 Nm	12.5 Nm
M7 * 1.00	14 Nm	20.5 Nm
M8 * 1.00	22 Nm	32 Nm
M8 * 1.25	20.5 Nm	30 Nm
M10 * 1.00	45 Nm	67 Nm
M10 * 1.25	43 Nm	64 Nm
M10 * 1.50	41 Nm	60 Nm
M12 * 1.25	77 Nm	112 Nm
M12 * 1.50	74 Nm	108 Nm
M12 * 1.75	71 Nm	104 Nm
M14 * 1.50	121 Nm	175 Nm
M14 * 2.00	113 Nm	165 Nm
M16 * 1.50	180 Nm	270 Nm
M16 * 2.00	170 Nm	250 Nm
M18 * 1.50	270 Nm	390 Nm
M18 * 2.50	245 Nm	350 Nm
M20 * 1.50	380 Nm	540 Nm
M20 * 2.50	350 Nm	490 Nm
M22 * 1.50	510 Nm	720 Nm
M22 * 2.50	470 Nm	670 Nm

## 8. Checklist

Description	Check?
Serial numbers checked (necessary for the COC document)?	
Fuel system checked for leaks?	
Are all nuts and bolts tightened with the correct torque?	
Is a user manual available (see website)?	
All parts are treated against corrosion?	
The exhaust gas-tight?	
Functioning of the 4P fixation in combination with switch?	
Operation of the 3 P fixation?	
Operation of the parking sensors (where fitted)?	
Closing the tailgate properly (operation of lock)?	
Approved test drive?	



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• Installation manual  
• Warranty



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• Parts  
• Distribution



## 11. Recommendation form

Dear installer,

Bierman strives to excel in delivering the highest quality wheelchair conversion kits for vehicles. However this is an ongoing process. Therefore we are interested in your opinion! So if you have any comments, improvements or recommendations, please tell us. After all, with your input we are able to improve the conversion kit (and manual). This is not only in our favour, but also you and your company will benefit from this!

Please send an e-mail to [info@bierman.eu](mailto:info@bierman.eu), or send this feedback-form to fax nr. +31 252 - 232985.

**Company:**

**Your name:** \_\_\_\_\_

**Date:**

**Vehicle:**

**Engine type:**

### Conversion:

**Manual version:**

**YOUR REMARKS:**



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